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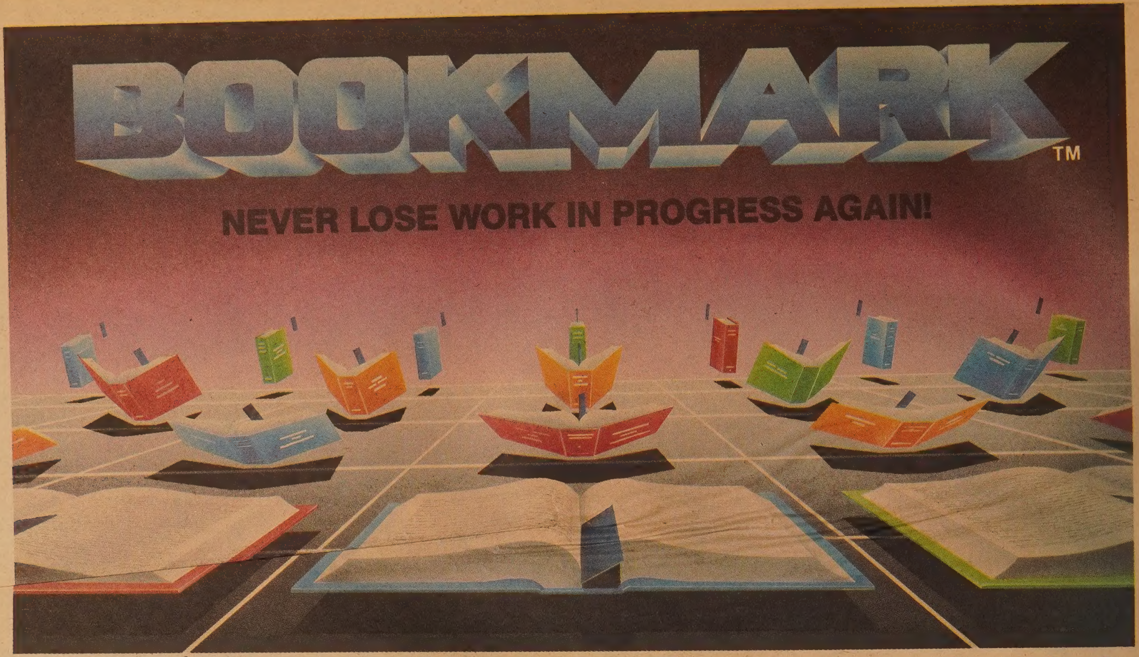
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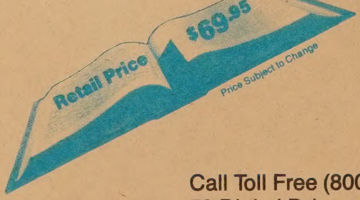

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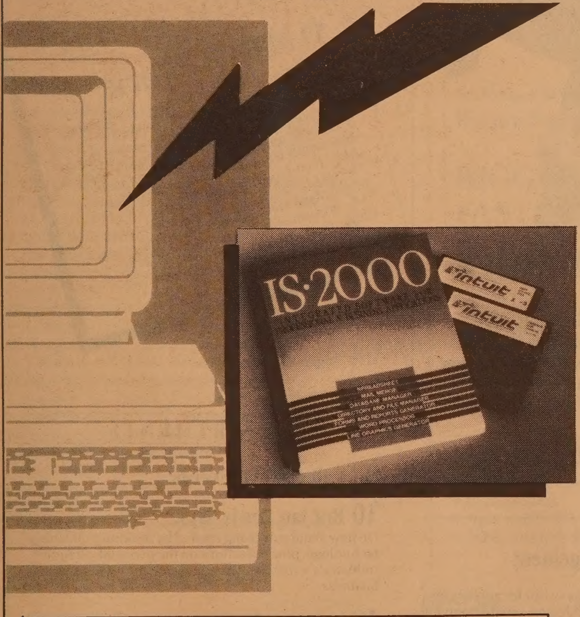

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COVER STORY

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By Jeff Spurrier

Irvine-based AST used to be best known for its SixPak Plus multifunction card. Now it's a force to be reckoned with in all areas of connectivity, and reaching out into the vast corporate market. In this story, Jeff Spurrier explores AST's products and plans for the future in areas of Mac-to-PC, micro-to-mini, and micro-to-mainframe connectivity.

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54 The New Macs: Power and Flexibility

By Robert Beauchamp

A look at Apple's newly unveiled machines — the powerful Macintosh SE, with limited expansion capability, and the open-architecture, color-optional, 68020-based Macintosh II. Also, third party products.

SPECIAL SECTION

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Premiering a new quarterly section devoted to the Macintosh and its applications in the workplace. In this issue, we examine the enhancements to Microsoft's long-awaited Word 3.0, and look at WriteNow, a next-generation word processor from T/Maker. Also, Jean-Louis Gassee, Apple's VP of Product Development, speaks about the future of the Mac and its applications, some yet undreamed-of, and columnist Doug Clapp volunteers some opinions on the perfect word processor.

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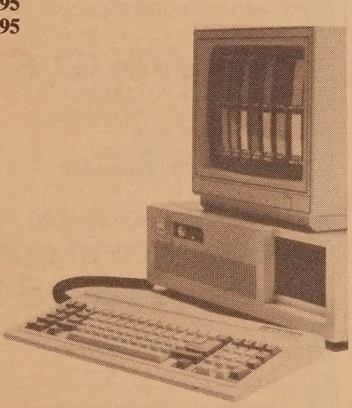

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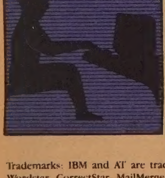

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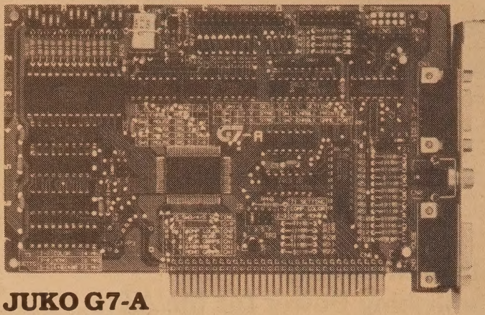

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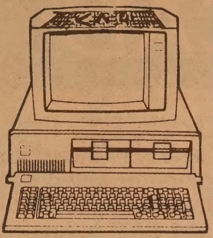

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CALENDAR OF EVENTS

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April 4 Computer Swap. Orange County fairgrounds. Call (800) 252-SWAP for information.

April 9-10 Western Educational Computing Workshops. San Jose State University, sponsored by the California Educational Computing Consortium. Contact Alexia Devlin, CECC Treasurer, San Francisco State University, Accounting Data NADM-358, 1600 Holloway Ave., San Francisco, CA 94132 for information.

April 11 San Fernando Valley Computer Swap. Cal State University Northridge, North Campus (formerly Devonshire Downs). Call Microshows, (800) 433-7469 for information.

April 20-22 CD-ROM vs Micrographics. IGC Conference Center, Monterey Beach Hotel, Monterey. Call (617) 267-9425 for information.

April 25 Computer Swap. LA County fairgrounds, Pomona. Call (800) 252-SWAP for information.

April 26-29 International LFT-Faire. Harvey's Lake Tahoe. For UNIX software vendors and VARs. Contact Gary Haslam, L.F Technologies, (702) 883-7611 for information.

May 9 Computer Swap. Pasadena Center, Pasadena. Call Microshows at 1-800-433-7469, or outside California at (415) 340-9114 for information.

May 16 Computer Swap. Orange County Fairgrounds, Costa Mesa. Call Microshows at 1-800-433-7469, or outside California at (415) 340-9114 for information.

May 20-22 Computer & Business Equipment Showcase. Anaheim Convention Center. Call The Interface Group, (714) 476-2300 for information.

May 30-June 1 Fourth Annual ShowBiz Expo. Los Angeles Convention Center. Call (213) 668-1811 for information.

June 13 Computer Swap. LA County fairgrounds, Pomona. Call (800) 252-SWAP for information.

July 18 Computer Swap. LA County fairgrounds, Pomona. Call (800) 252-SWAP for information.

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*As a community service, **MicroTimes** lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month , two months before the cover date of the issue in which you'd like it to appear (i.e. the deadline for the March issue, distributed during February, is January 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.*

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

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BUT JAN LEWIS SAYS . . .

Desktop Publishing Creates New Standards

Leonard Tramiel of Atari is not alone in questioning the definition of Desktop Publishing (DTP). But the real issue is not "What qualifies as DTP?" but "What are the results?" Does the final copy rise above the noise level of everyday material? Does it get into the in-box or thrown out as junk mail? Does it get read and remembered? Does the reader respond? The real issue is effective communications, not checklists of features and fonts.

As DTP improves the appearance of the average document, what was once acceptable copy will look like a candidate for the round file. We have seen this progression before. Remember when a personalized typewritten letter was impressive? ("You may already be a winner, Ms. Occupant!") Letter-quality printers then became the rage because dot matrix shouted "Impersonal computer!" Now, of course, even letter-quality, right-justified text doesn't fool anybody. Today, when I get letter-quality mail, I think "Why didn't they use a laser printer?"

So the visual ante has been raised to 300-dots-per-inch laser fonts. But you don't need what Apple defines as "real" DTP to compete — even bad prose looks good with a 14-point Times Roman headline.

The low-end DTP products just deliver multifont, multiformat hardcopy, while high-end systems include such attractive features as kerning or hyphenation and justification. And as products like Interleaf move down the hardware stream, these features will be everywhere. But acceptable DTP will vary, from Atari's dual column ASCII to Springboard Publishing's DTP for the Apple II and *PageMaker* for Mac and DOS. Software products from $100 up will deliver a range of controls over text and graphics formerly approached only by sophisticated phototypesetting.

Atari is ready to ride this print quality craze, even without PostScript — all it needs is one big hit. What *VisiCalc* did for the Apple II, what *Lotus 1-2-3* did for the IBM PC, what *PageMaker* did for the Mac — one good DTP package could do for the Atari St. Atari needs to deliver the best DTP it can, for the lowest price to the largest number of users, to attract the third-party software packages and add-on products required to maintain the standard.

What VisiCalc did for the Apple II, what Lotus 1-2-3 did for the IBM PC, what PageMaker did for the Mac— one good DTP package could do for the Atari ST.

The Tramiels are geniuses at delivering more for the buck, but don't look to them for innovations in document handling or fonts. Their innovations are strictly found in the customer's bottom line. In the process, they squeeze everyone in the middle: suppliers, distributors, and third-party developers. (Look at the Commodore 64: three million sold by both computer specialty stores and mass merchants—many below cost.)

The fat files created by DTP will increase the need for more throughput, more memory, more storage, more screen resolution, more fonts, and more document controls. And the DTP standard could be substantially raised when products like Interleaf are available on vanilla PCs and 68000s. But if 300-dpi LaserJet output is the minimum, how long before megamanufacturers like Canon and Ricoh offer $600 laser printers?

As DTP approached phototypeset quality with mixed text and graphics, how will you get your 1200-dpi Product Plan noticed over everybody else's 1200-dpi Product Plan? Well, I have just the product for you — the "Sincerity" font! Make your written communication look like a real secretary slaved over a hot typewriter all day. "Sincerity" emulates a 1948 Smith-Corona Prestige Elite typewriter, including broken characters and wandering baseline. Options include little stick-on blobs of liquid paper for authenticity. Anybody with a PC can produce dual-column, balanced, right-justified text, but with "Sincerity" it looks like you really care! ☐

Serendipity Is No Accident

The year 1977 was a year for innovations, the most dramatic being the "prebuilt" computer kit. Now everyone could have a personal computer—no assembly required, no little packets of capacitors, no empty circuit boards to stuff. And CP/M (from a startup company with the ambitious name of Intergalactic Digital Research) provided a ready-to-go operating system. The first Computerland store, the Apple II, the Commodore PET, and the Tandy TRS80 only a decade ago? Seems more like a century.

In the middle of all this energy and insight was the First West Coast Computer Faire—a gathering of the "torn tee shirt" tribe of computer hobbyists and hackers. In 1977, the Apple II, with 48 Kbytes of RAM, cost nearly $5,000 in today's dollars. Since then, everything silicon has become cheaper and faster, with bigger capacity. More bang for the buck built many companies. Overnight millionaires —and overnight Chapter 11s—are all part of the past 10 years.

But today we see a dangerous turn toward intellectual and coporate protectionism. Hard to imagine how different the past 10 years would have been if Jobs and Wozniak had arrived with a closed box and an army of lawyers to protect the Apple "look and feel."

Looking over the industry scorecard, open and expandable products succeeded, while closed products fell behind. IBM failed with the closed 5100 (a desktop computer running APL and BASIC), but succeeded with the completely open IBM PC — much to the surprise of everyone! The networked Xerox STAR, closed by exclusive architecture, pioneered ideas but failed.

But the free flow of ideas at the Faire was encouraged for a very self-serving reason: When everyone shares, there is more for everyone. Only a year before the Faire, we had a chaotic nonindustry. But at the Faire, problems met solutions, and hackers met backers.

Today things are different. Intellectual barriers have been erected that could be as harmful as any tariff.

...before the Faire, we had a chaotic nonindustry. But at the Faire, problems met solutions, and hackers met backers.

In many ways we are still in what Leonard Tramiel called "4004 emulation mode": building the next more powerful engine, hoping that speed will hide the shortcomings of previous generations. Even Macintosh, GEM, and Windows interfaces are little changed from the original desktop metaphor developed by Xerox PARC in the early 1970s.

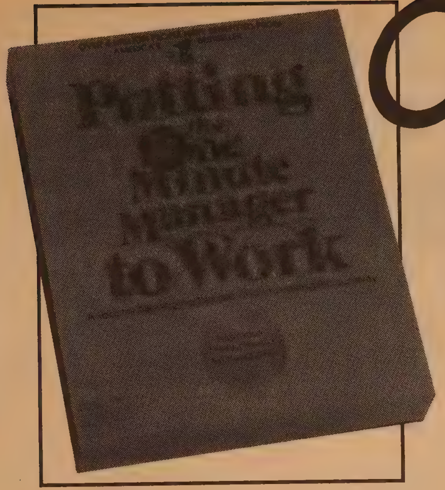
But linear thinking was evident even in 1977. TI and Commodore, the companies most feared, viewed the personal computer as nothing but a maxicalculator. Consequently, they extended calculator features like the keyboard to PCs and created jumbo calculators with no software that ultimately failed.

As the industry grew from garage to boardroom, risks became bigger, but fewer risks were taken. Today the industry plays it safe. The most recent "daring" deed: Compaq introduces a 386 machine without waiting for IBM.

We are losing another by-product of information freeflow: serendipity. Had there been an earlier microcomputer hobby show on the West Coast, Jim Warren probably wouldn't have bothered to set up his own. Apple picked the 6502 because it was the cheapest microprocessor on the market. *VisiCalc* developers got hold of an Apple before an Imsai, so Apple hit the stratosphere and Imsai faded. Events that can't be planned or put into a chart made millionaires—and brought the computer to millions.

Ten years ago, the industry was held back by the lack of a good operating system for the hardware. The CP/M (and others) came along and turned silicon into a system. The open and free market jumped in to develop applications that never occurred to the originators. Ten years later, the industry is again held back by the lack of a good operating system for the 286- and 386-based machines. And when it does come, it will probably come from IBM or Microsoft, not from some upstart startup like Intergalactic Digital Research. ☐

Jan Lewis is a well-known industry analyst and president of the Palo Alto Research Group, a consulting firm for the microcomputer industry. This article has been reprinted with permission from Computer Insider, *PARG's newsletter.*



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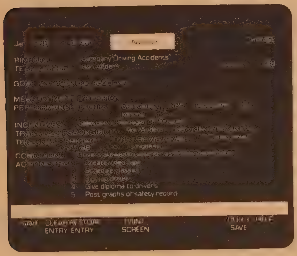

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LATE-BREAKING NEWS

By Patricia Lesser

Promotion At Activision

Activision (Mountain View, CA) has named Bruce L. Davis as its President and COO, promoting him from his previous position as the VP of corporate development.

Aldus Promotes Compatibility And Contests

Aldus Corp. (Seattle, WA) has announced that its PC and Macintosh versions of *PageMaker* will now share 80 percent of their code, with identical features and mutual file compatibility. Aldus has also announced a new design contest, which will run through May 31st. The winner for each of six categories will receive a $250 gift certificate and a weekend package for two at any Hyatt Regency in the U.S. or Canada.

Fruits Of The Apple Harvest

Apple Computers, Inc. (Cupertino, CA) has announced net sales of over $660 million with a net income of over $58 million for the three months ending December 26, 1986. Not surprisingly, they also announced that the company remains debt-free.

Mac Goes DOS, With A Little Help From Friends

Apple Computer, Inc. along with several third-party vendors have announced MS-DOS capabilies for the Macintosh personal computer. AST Research , Inc. (Irvine, CA) has announced the first of two new coprocessor cards that provide IBM XT and AT capabilities for the Macintosh SE and Macintosh II. Dayna Communications (Salt Lake City, UT) has announced an MS-DOS disk drive together with file transfer software options for the new Mac systems. They are offering three kinds of compatibility products: connectivity offerings that let computers share data via network or other wired connection, media compatibility products that facilitate the exchange of MS-DOS data files with the Mac, and applications compatibility products that allow Mac computers to run MS-DOS software.

Apple's is offering a PC 5.25-inch external drive (360 K) and two interface cards (one for the Mac SE and one for the Mac II). It is also offering a software utility called *InterFile*, which performs two-way data transfer and transformation operations between MS-DOS and the Macintosh.

Dayna Communications announced its MS-DOS disk drive that will work not only with the new Macs, but also with the (now) entry-level Mac Plus. Called the DaynaFile, this product connects to the SCSI interface port and works without a separate interface card.

AST's two coprocessor cards are the Mac86 for the Mac SE and the Mac286 for the Mac II. They allow the Macs to run MS-DOS applications in a window on the Mac. These products were developed as part of a cooperative effort among AST, Apple and Phoenix Technologies Ltd. (Norwood, MA).

ADR Will Acquire SST's Relational Database Technology

Applied Data Research Inc. (Princeton, NJ) and Software Systems Technology have announced a licensing agreement under which ADR will acquire the software technology for SDB, SST's relational database management system for PCs, LANS, and minis.

COMPUTEREYES

Computereyes is a scanning device for IBM micros equipped with EGA or CGA cards.

Digital Vision Hooks Up IBMs To Video

Digital Vision (617/329-5400) has announced Computereyes for IBM micros equipped with EGA or CGA adapters. This is a slow-scan device that connects between any video source and the computer. Under software control, a b/w image appears in less than 12 seconds. ($249.95)

UNIX For Intel's 80386 Processor

AT&T (Basking Ridge, NJ) and Microsoft Corp. (Redmond, WA) have announced they will introduce a specific version of the UNIX System V operating system for Intel Corp's 80386 microprocessor. The product will incorporate Microsoft XENIX System V compatibility into AT&T's UNIX System V Release 3 for computers using the 80386 processor. It is expected to be available early in 1988.

Litigation In The Great White North

Autodesk (Sausalito, CA) has joined with other major software publishers in a copyright infringement lawsuit against the Softsave Preview Club of Vancouver, B.C. The case is being heard by the Supreme Court of British Columbia. Other plaintiffs include Activision, Ashton-Tate, Brøderbund, Infocom, Lifetree, Lotus, MicroPro and Microsoft.

RUMORS

- Due out late in March is *PageMaker 2.0* for the Macintosh from Aldus Corporation (206/622-5500). By combining the engineers from both the Mac and IBM PC group, the new releases of *PageMaker* will share 80 percent of their code along with identical features and mutual file compatibility.
- Watch for the new, low-end, 8088-2-based IBM PC to make its market entrance during early April of this year. Known as the IBM PC ET, this unit will mark Big Blue's re-entrance into the low-end market.
- If you're a *Jazz* afficionado, the rumor is that its days are numbered. Especially in light of the fact that Lotus has announced a program called *Galaxy*, which was previewed at AppleWorld. Many feel the program is simply a *Jazz* re-write with expanded capabilities. *Galaxy* includes mainframe communication, worksheet, word processing and database modules.
- Continuing on the Mac front is the rumored appearance of *Silver Surfer*, a new sophisticated database that can control the Apple LaserWriter.

Borland Software In The Classroom

Borland Int'l (Scotts Valley, CA) has signed an agreement with John Wiley & Sons, Inc. to develop and market a special line of textbooks that will enhance the learning and use of Borland software products in academic institutions. Entitled, *The Borland-Wiley Higher Education Series*, the new titles will be based on best-selling software products such as Borland's *Turbo Pascal*. They will be published by Wiley for educational markets in the U.S., Canada and Europe.

Print Shop Price Reduced

Brøderbund Software (San Rafael, CA) has announced a new $59.95 price for the Macintosh version of *Print Shop*. This is down from $79.95. The new price goes into effect immediately.

Control Data And Boeing Team Up For Space Program

Control Data Corp. and Boeing Electronics Company will design and develop a family of spacecraft computers for onboard sensor data processing. The cooperative agreement was recently announced at the Aerospace Engineering Conference.

Daniel Carter Moves On, Hyo-Bin Im Moves In

Cordata (Thousand Oaks, CA) has announced that Daniel R. Carter has, for personal reasons, resigned as the president and director of Cordata Technologies. Hyo-Bin Im is the company's new CEO.

John Douglas Named New President of Digital Communications

Digital Communications Association, Inc. (Alpharetta, GA) has named John Douglas as the president of the company. He was previously a design engineer for Honeywell, and the VP and general manager at Memorex's communications division.

New Enhancements for Quick-Gram

General Electric Information Services (Rockville, MD) has announced two enhancements to its *Quick-Gram* paper mail product, consisting of a Text Insert Message and Stored Text capabilities.

Formaster And Magnetic Designs Merge

Formaster Corp. (San Jose, CA) will merge with Magnetic Designs Holding Corporation (Redwood City, CA), with a majority approval from the shareholders of both companies.

IBM Raises Rental Rates, Some Prices

IBM (Rye Brook, NY) has announced increases for most of the company's equipment rental rates. Purchase prices for selected magnetic tape products and selected IBM Information Network prod-

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OKIDATA 182	235
OKIDATA 192 PLUS	350
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OKIDATA 292	525
CITIZEN MSP 25	485
CITIZEN MSP 20	345
CITIZEN MSP 15	375
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ucts will also be raised. Selected maintenance and licensed program charges will be increased as well. The affected rates and prices are being increased approximately 10 percent.

Jasmine Breaks On To Mac Scene

Jasmine Technologies (San Francisco, CA) has been inaugurated to develop and market peripheral products for the Macintosh computer. This new company employs 23 people and develops, manufactures and markets external SCSI hard disk drives.

Cordata Dealers Now Sell Lexisoft's Spellbinder Directly

Lexisoft, Inc. (Davis, CA) has announced an agreement with Cordata (Thousand Oaks, CA) wherein Cordata can sell *Spellbinder Desktop Publisher* Version 6.3 directly to its resellers for the Cordata LP-300X laser printer.

Patch Communications Launches MacWeek

Publisher Michael H. Tchong of Patch Communications will launch, on May 4th, a new magazine called *MacWeek.* This will be a weekly news tabloid for corporate managers and other multi-unit buyers of Mac computers.

Tokyo Company To Distribute Japanese Version Of GURU

Micro Data Base Systems Inc. (Lafayette, IN) the developer of GURU, and Knowledge Engineering Laboratory Corp. (KELC) of Tokyo, have entered into an agreement for KELC's exclusive distribution of GURU in Japanese.

Micro Market World And Computer + Software News Merge

The tabloid *Micro Market World* (Framingham, MA) has merged with *Computer + Software News,* whose parent company is Lebhar-Friedman. CW Communications will continue to hold a financial interest in *Micro Market World.*

Word Takes Advantage Of AppleShare

Microsoft Corp. (206/882-8080) has announced that the MS *Word Version 3.0* for the Mac will take full advantage of Apple's recently announced AppleShare network. This makes it the first word processor optimized for the Mac networking environment.

Newsnet Expands Online Information Service

Newsnet (Bryn Mawr, PA) has added *Telecommunications Week, New Era: Japan,* and *Morgan Report on Directory Publishing* to its online business newsletter information service.

Novell Enters Highly Competitive Mac Support Market

Novell (Orem, UT) is going head-to-head against 3Com in announcing its support for the Macintosh. They plan to introduce products under its Universal Network Architecture banner. Novell has also acquired Softcraft (Austin, TX), which developed Btrieve, a database management utility that allows applications to be written in a variety of languages.

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Every month in the pages of MicroTimes, industry expert Jan Lewis of the Palo Alto Research Group offers topical analysis of industry issues and trends. Check "But Jan Lewis Says . . ." in this issue.

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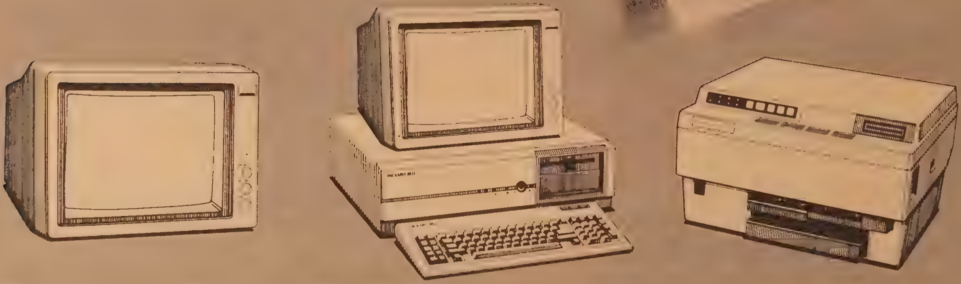

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Okidata Offers Free Print Drives For *Lotus 1-2-3* And *Symphony*

Okidata (Mt. Laurel, NJ) is now offering free Microline 292 and 293 printer drivers that reduce *Lotus 1-2-3* and *Symphony* graphics printing time. They also support underlining, superscripts and subscripts for *1-2-3 Report Writer.*

New Educational Version Of *VP Planner*

Paperback Software (Berkeley, CA) has an educational version of *VP Planner*, available from Holden-Day Inc. It consists of the software and accompanying text. The package is priced at $19.95.

Russell Weeks Joins Personal CAD Systems

Personal CAD Systems, Inc. (San Jose, CA) announced that Russell Weeks has joined the company as its new VP of marketing and as a corporate officer.

Samna/Sharp Agreement

Samna (Atlanta, GA) has entered into a joint agreement with Sharp Electronics Corp. to provide *Sharpwriter*, the word processing component of Sharp's new PC/Electronic Typewriter, the ZY-1000S.

ST Systems Awarded NASA Contracts

ST Systems Corp. (Lanham, MD) has been awarded two, five-year contracts totaling $12.6 million to provide systems support for two major NASA programs.

American Company Granted Japanese Patent

Tandon Corp. (Chatsworth, CA) will be awarded a Japanese patent covering its technology for the manufacture of double-sided flexible disk drives used for memory storage in microcomputers. The Japanese patent will be a counterpart of U.S. Patent #4,151,573, granted to Tandon in 1979 which Tandon has licensed to other disk drive manufacturers worldwide.

Toshiba Lowers Prices On Two Printer Models. . .

Toshiba America Inc. (Irvine, CA) has reduced the prices of its top-of-the-line 24-pin P351 and P351C Model 2 dot matrix printers. The Model 2 now costs $1,599, a $150 reduction, and the P351 Model 2 3-in-One printer is now priced at $1,399, down $200.

. . .And Its Portable PCs

Toshiba America Inc. (Irvine, CA) has reduced the price of its portable PCs, the T3100 and T1100 PLUS. The T3100 is now priced at $4,199, a $300 price reduction, and the T110 now costs $2,099 for the 640K version, down $300. The 256K model is being discontinued.

Tseng Labs Lowers Graphic Adapter Prices

Tseng Labs (Newton, PA) has reduced the prices on its EVA/480, EVA and the UltraPAK-Short graphics adapters. The EVA/480 is now $580, down from $680. The EVA is now priced at $399, and the UltraPAK-Short at $199.

Wyse Raises William Seymore To VP, Lowers Prices on PC

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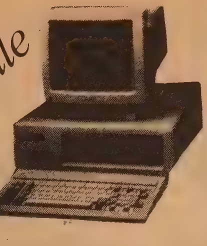

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Wyse Raises William Seymore To VP, Lowers Prices on PC

Wyse Technology (San Jose, CA) has lowered the price of its 40 MB WYSEPC 286 to $3,699 from $4,199. The company has also appointed William Seymoure to the position of vice president of business development.

NEW PRODUCTS

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Shanghai for the Apple IIGS

Activision (415/960-0410) has released its best-selling computer puzzle game, *Shanghai*, for the Apple IIGS computer. *Shanghai* is continually challenging but easy to learn. The game is made up of 144 tiles consisting of seven visually different suits, which are stacked in a five-level, dragon-shaped pyramid. Tiles must be removed in pairs until all have disappeared or no additional moves can be made. Each time a new game begins, the tiles are shuffled creating new challenges. ($44.95)

Gamestar Releases Football, Baseball Games

Gamestar, a subsidiary of Activision, (415/960-0410) has released *GFL Championship Football* for the following systems: Apple II series ($39.95), Atari ST ($44.95) , Amiga ($44.95) and MSDOS computers ($39.95). This program provides players with on-the-field perspectives and hard-hitting action. Additionally, Gamestar has released *Championship Baseball* for the Apple II family and for IBM micros and compatibles. This is a baseball simulation offering that makes you the team manager or a player for an entire season of big league action. ($39.95)

Electronic Arts And Lucasfilm Games Present PHM Pegasus

Electronic Arts (415/571-7171) and Lucasfilm Games have jointly released *PHM Pegasus*, a combat simulation game involving hydrofoil missile craft. PHM Pegasus puts the players in control of hydrofoils as they battle in the oceans with numerous enemy vessels in any of eight different combat assignments. For the Commodore 64/128 and Apple II family. ($29.95 and $34.95, respectively).

Marble Madness On The Apple II

Electronic Arts has also released a new Apple II version of its smash arcade hit, *Marble Madness*, which is based on the world famous coin-op classic from Atari. The Apple II version also offers an all new Secret Level which is as challenging to play as it is to find. ($34.95)

Epyx Brings Sub Battle Simulator To The Macintosh

Epyx (415/366-0606) has introduced *Sub Battle Simulator* for the Macintosh. The game was designed by Digital Illusions, Inc., the creators of *Orbiter*. The overall objective is to command a WW II submarine in either the Atlantic or the Pacific, complete the assigned mission, and return to home base. There are 24 American and 36 German missions to choose from and all are based on historical data.

Gessler Lets You Learn While You Play

Gessler Educational Software (212/673-3113) has introduced two new programs. The first is

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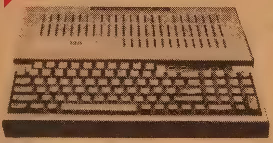

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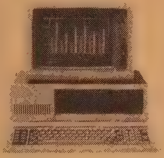

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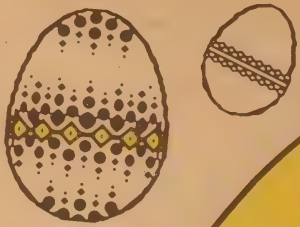

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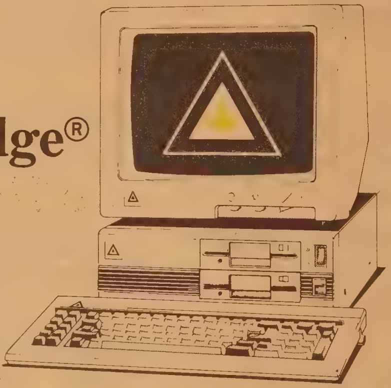

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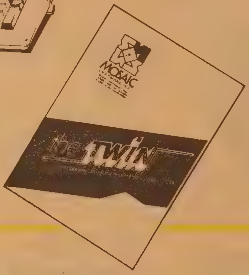

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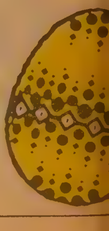

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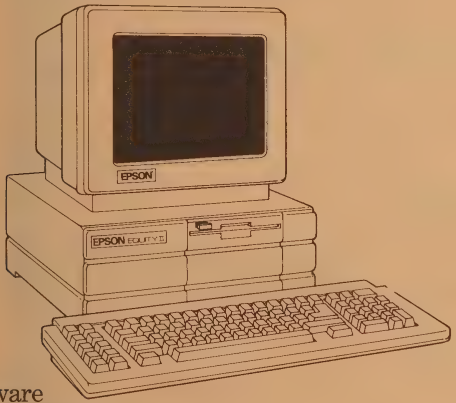

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What's Happening?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

Whodunit, which improves French, Spanish or German language skills while inviting the user to solve a mystery. The second is *MicroSCRABBLE*, which improves users' French language skills while playing a computer version of the popular board game. $49.95 and $39.95, respectively.

New Fantasy Adventure From Mindscape

Mindscape, Inc. (312/480-7667) has introduced *Shadowgate*, the third in the company's graphic adventures from Icom Simulations. In *Shadowgate*, you must survive the perils of Castle Shadowgate as you search for the Warlock Lord, a cunningly evil wizard. Expert gamers will appreciate the challenges of tough, clever puzzles. ($49.95)

Aspiring Writers Take Note

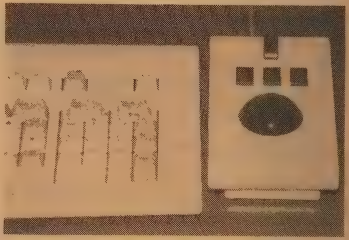
Scholastic Software Inc. (212/505-3000) has released *First Draft*, an outlining and writing software program for students in grades six and up. *First Draft* guides students through all stages of the writing process, from organizing ideas to printing finished essays, reports and stories. It is available for the Apple II family, the IBM and compatibles. ($69.96, home edition, $87.45 school edition).

Strategic Simulations Sinks Ships With Battle Cruiser

Strategic Simulations (415/964-1353) has introduced *Battlecruiser*, a new game for The Apple II, Commodore 64/128 and Atari 8-bit computer systems. The game, from Gary Grigsby, author of *Warship* and *Kampfgruppe*, features ship-to-ship tactical combat in the Atlantic theatre during WW I and WW II. During combat, the computer keeps track of every shell hit and calculates damage based on such factors as armor strength, location of hit, and penetration ability of each shell. ($59.95)

New Scenery Disk For Flight Simulator And Jet

Sublogic has also released Scenery Disk #7 for Microsoft's *Flight Simulator* or its own *JET* flight simulation programs. This disk covers the East Coast of the United States in detail, from Washington DC down through Key West. There are



FastTRAP is a three-dimensional pointing device for IBMs and compatibles.

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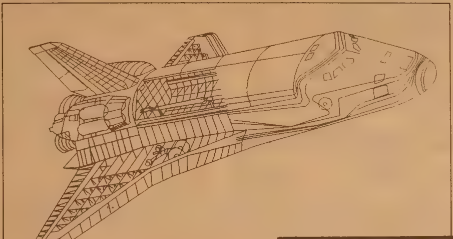

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hundreds of miles of coastline, many rivers and roads, railroads, racetracks, and transmitter towers (some with blinking lights at night), and elevated bridges that now cast shadows. Scenery Disk #7 is available for IBM micros and compatibles. ($19.95)

ATARI

New Offerings From Antic

Antic Publishing, Inc. (415/957-0886) is now shipping the first in a new series of 3D clip art disks for *CAD-3D. The Future Design Disk* is much like a high-tech "erector set" of dimensional modules, including parts for starships, space stations, vehicles, and android robots. ($24.95) Another new offering is *G.I.S.T. - G.I. Sound Tool*, which provides programmers with an interrupt-driven sound driver to replace the original factory programming of the Atari ST sound chip. It provides nine ADSR waveform envelopes and nine Low Frequency Oscillators. ($34.95)

COMMODORE

Word Processing for the C64

Timeworks (312/948-9200) has introduced *Word Writer 3*, the most comprehensive, according to the company, C64 word processing system available today. New features include: an 85,000 word spelling checker, an integrated thesaurus, an integrated outline processor, an 80-column print preview mode, a highlighting feature, headers and footers, GEOS compatibility, Swiftkeys and automatic program set-up. ($49.95)

APPLE II

Create Awards And More With Award Maker Plus

Baudville (616/957-3036) has introduced *Award Maker Plus*, for the Apple II computer family, It is an easy to follow program for creating awards, certificates, licenses, coupons, or other documents of your own design. The program prints hundreds of pre-designed award styles, allows you to choose a text style, enter your own message, select the border style and color, and even enter your own hi-res picture. There are also gold embossed press-on seals. Updates to registered owners of previous versions are $12.50, with the retail price set at $39.95.

Electronic Arts Makes Popular Software Available For The IIGS

Electronic Arts (415/571-7171) will be releasing five of its popular software products for the Apple IIGS computer. *Music Construction Set* has already debuted as well as *DeluxePaint II. DeluxePrint, Instant Music* and *DeluxeMusic Construction Set* follow later this year. Seventeen of the company's other Apple II programs run on the IIGS.

IBM AND COMPATIBLES

Celebrate With Print Shop

Brøderbund Software (415/479-1700) has released *The Print Shop Graphics Library Holiday Edition* for IBM and clone users. This offering expands the graphic capabilities of *The Print Shop* by offering specially created designs for festive occasions. The edition contains 101 design elements and a reference card.

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NBI Word Processors To Work With Laser Printers

Brookridge Assoc. (302/998-4200) has introduced its NBI laser package which allows all NBI word processors to use laser printers from Hewlett-Packard, Xerox, Canon, Ricoh, NCR, Texas Instruments, ATI and QMS. Called The Emulazor, this offering can hook a word processor to a Xerox printer for only $8,158. The controller connects to the word processor using a Qume Sprint 3 card, phone jack or coaxial cable. Once connected, tripping the reset button puts the controller to work.

Multi-Lingual Word Processing With Ambassador

Gessler Educational Software (212/673-3113) has released Ambassador, a multi-lingual word processor that lets the user write in French, Spanish, German, English and Hungarian. The Ambassador features word processing capabilities such as full onscreen justification, pagination and printer selection. ($39.95 - also available for the C64/128, Macintosh and Apple II computers).

New Version OF R&R Relational Report Writer

Concentric Data Systems, Inc. (617/366-1122) has announced Version 2 of *R&R Relational Report Writer* for *dBASE*, which features Relational Merge. *R&R* allows users to create reports faster than programming with *dBASE* itself. The new Relational Merge feature lets users prepare form letters directly from related *dBASE* files. *R&R* can relate and report from up to 10 files at once. Free-form text and fields can be printed in any layout. New fields can be calculated using more than 70 predefined functions. More than 70 other user-suggested enhancements have been incorporated into the new version. ($149)

Digtalk Offers 'Goodies" For Smalltalk

Digitalk Inc. (213/645-1082) has introduced two optional Extension Kits to accompany its release of the Smalltalk programming language. The first Extension Kit integrates full EGA color capabilities into the Smalltalk/V environment, enhancing the system's already extensive bit-mapped graphics. The second kit, called "Goodies,"offers a number of new programming "kernels" that allow users to extend the Smalltalk environment to handle applications that require discrete event simulation, forward-chaining inference operations, or connection to external sensors and instrumentation. ($10 or via BIX or CompuServe).

Digital Researh Releases Concurrent DOS 386

Digital Research (408/649-0750) has released Concurrent DOS 386 which takes full advantage of key features of the Intel 80386 microprocessor. Concurrent DOS 386 is a significant enhancement to the multi-user, multi-tasking technology at the heart of the Concurrent DOS family. It remains compatible with Concurrent DOS, PC-DOS, MS-DOS, CP/M-86 and MP/M-86 applications. Available during the the second quarter of this year.

Manage Client Portfolios With New Software From Excalibur

Excalibur Sources, Inc. (404/956-8373) has introduced the *Exsell Portfolio Manager*, a software package that allows brokers and other financial professionals to easily monitor client portfolios. ($495)

News From IBM

IBM (Rye Brook, NY) has made several announcements. Two comprehensive SolutionPac offerings now allow customers to easily install and use complete office functions, from graphics to electronic mail, on IBM's most popular general purpose computers. They also announced that faster, denser computer chips, with efficient programming and a display with razor-sharp resolution have enhanced the RT's performance and usability. The RT now contains additional IBM technology including an IBM-developed 32-bit microprocessor, an IBM-invented program compiler, IBM-developed one megabit chip, and new high resolution megapel displays.

Index Ships 1.7 Version of Excelerator

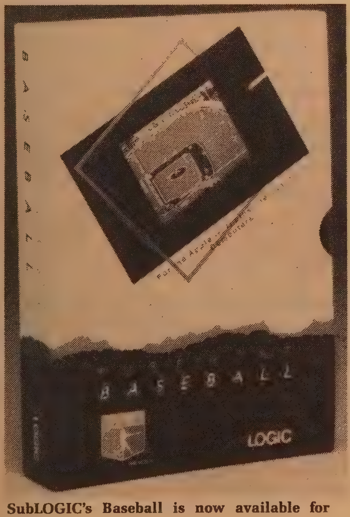
Index Technology Corp. (617/491-2100) has begun shipment of *Excelerator Version 1.7*, software for systems analysis and design. ($8,400)

CompareRite enhanced For More Word Processing Programs

Jurisoft, Inc. (617/864-6151) has enhanced its *CompareRite* document editing software program in order to support *WordStar 2000*, *MultiMate*, *Volkswriter* and *OfficeWriter* word processing programs. *CompareRite* enables word processing users to quickly and easily compare two drafts of a document for style and accuracy. Pricing ranges from $99.95 to $159.95, depending upon the number of word processors that are supported.

Lattice Makes Life Easier For C Programmers

Lattice (312/858-7950) has released its new *dBC III Plus* library of C functions which enable C



SubLOGIC's Baseball is now available for Apple II.

Sublogic Pitches Baseball

Sublogic Corp. (800/637-4983) has released *Baseball* for the Apple II computer family. This is a complete statistical baseball simulation for one or two players and considers each player's batting stats against both left- and right-handed pitchers and pitchers stats vs. left- and right-handed batters. Highly detailed animated graphics give you a perfect view of the playing field. ($49.95)

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COMING
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Next month *MicroTimes* brings you a *Lotus 1-2-3* extravaganza, with informative interviews as well as product announcements and tutorials to help you get the best performance from your spreadsheet.

We'll also have an interview with Kaypro president David Kay, who'll discuss the dramatic improvement in the company's fortunes and talk about its new products and future direction.

Additional items on the agenda: a look at *MindWrite*, a next-generation word processor for Macintosh, as well as a discussion of MicroPro's decision to release a new CP/M version of *WordStar*.

All this, plus our regular columns, reviews and commentary, await you in the June issue of *MicroTimes*, available May 1.

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What's Happening?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

programmers to simultaneously create, access and update files that are compatible with Ashton-Tate's *dBASE III PLUS*. This offering provides an alternative to programming in the *dBASE III PLUS* interpretive language. ($750)

Lebaugh Soups Up LePrint

Lebaugh Software Corp. (800/532-2844) has introduced a major update of its *LePrint* software. Version 2.0 now offers integration of text and graphics, vertical and horizontal rules and boxes with or without shading. It is now compatible with more printers and word processing software. Foreign characters and two new type styles have also been added. $60 for owners of *LePrint*, $26 if you purchased *LePrint* after October 1, 1986.

Lexisoft Gives Spellbinder New Abilities

Lexisoft (916/758-3630) has now enabled desktop publishers to print a booklet quickly and easily using *Spellbinder Desktop Publisher's* new Quadplex printing capability. The program automatically lays out text in proper sequence for side by side or back to back printing. *Spellbinder* also includes Electric Webster, an expandable dictionary with hyphenation features.

Upgraded Word For Word From Master Soft

Master Soft (602/277-0900) has upgraded its *Word For Word*. Version 2.0 adds four new formats for file conversions and has improved support for the modules that were included in Version 1.0.

New Products From Media Cybernetics

Media Cybernetics (301/495-3305) has released Version 1.20 of *Halo DPE* (Desktop Publishing Editor) which can be used for preparing newsletters, flyers and documents of ten pages or less. New features include, text at any angle, larger icons for high resolution display modes, support for EGA 640 by 350 monochrome mode and more. The company has also introduced Image-Pro, a powerful image processing package which brings mini and mainframe capabilities to the IBM AT environment.

No Frills Desktop Publishing From Plummer

Plummer Research (415/324-8160) has announced *PAGEr* desktop publishing software. *PAGEr* was developed to eliminate the obstacles normally associated with PC-based desktop publishing. The software operates in true WYSIWYG manner, requires only a dot matrix printer, monochrome monitor, and 256K of memory. This is a no-frills approach to publishing. ($49.95)

Point Spread For Spread Sheets Allows Use Of Mouse, Light Pen Or Touch Screen

Point Technology (818/366-1234) has a new spreadsheet product named *Point Spread*. This software provides a customized interface between spreadsheet packages and a pointing device, such as a light pen, touch screen, or mouse. Point Spread saves time and increases the efficiency of *Lotus 1-2-3* and *VP-Planner* by converting multiple keystrokes into a single touch. ($95)

Easy Working Software From Spinnaker

Spinnaker Software Corp. (617/494-1200) has introduced the *Easy Working Software* series. The three new programs that have debuted under this

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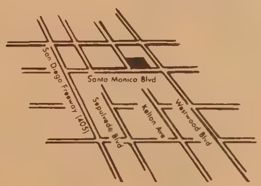

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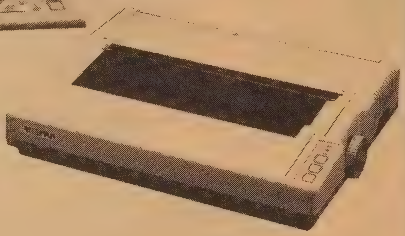

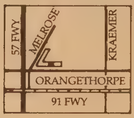

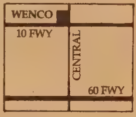

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banner so far are, *The Writer, The Planner* and *The Filer. The Writer* is for first-time word processors and includes all of the standard editing functions as well as a spell checker. *The Filer* allows over 50,000 files to be stored as well as creating form letters. *The Planner* is an electronic spreadsheet and has extensive math calculations and onscreen help. All three programs can be integrated and are priced at only $9.95 each! Available for IBM micros, Apple II family and Commodore 64/128 systems.

New Features For Perspective

Three D Graphics (213/459-7949) has added new features to its 3-D package, *Perspective.* With release 1.2 you now can print out 2-D and 3-D graphs to a resolution limited only by your printer. Plus you can create a graph of any size in portrait or landscape format and place it anywhere on the page. You can also save or load picture data in the GEM .IMG format.

Ada Version Of Scribe Released

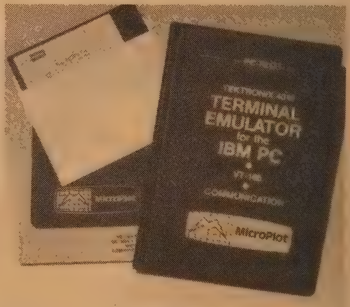
Unilogic, Ltd. (412/281-5959) has released the Ada version of its *Scribe Document Production System. Scribe* is easy-to-use formatting and document production software for laser printers. It is well-suited to the production of large documents such as manuals and proposals. The program supports over 50 printers and is available on a wide range of systems, including DEC VAX, IBM and Prime mainframes, Sun, Apollo, IBM and various UNIX stations.

Stock Exchange Simulation That Won't Crash

V Ware (602/323-7060) has released *Specialist, Version 2.0,* a package that simulates the actions of a New York Stock Exchange specialist. It is intended for anyone who invests in the stock market. This program reveals how the market specialists influence stock market prices. ($89.95)

Users Given A Free Hand With Publishers Paintbrush

Zsoft Corp. (404/980-1950) has introduced *Publisher's Paintbrush,* a freehand paint software package that features editing of images size 8 by 10 and larger. It also features RAM-resident for rapid scrolling, editing in "zoom" mode, three font technologies for enhanced headlining, captions and annotation. ($285)



PC Plot IV is a graphics terminal emulation package

Microplot Adds PC Plot IV To Its Product Line

Microplot (614/882-4786) has added to its product line *PC Plot IV,* a graphics terminal emulation software package that provides the user with script language and XMODEM file transfer capabilities. ($150)

MACINTOSH

2&3D CAD From Advent

Advent (213/659-5157) has released *SpaceEdit*, a fully integrated 2 & 3D CAD software program for the Mac computer which will allow engineers & architects to design any object and then visualize it in perspective from any point of view ($625).

High Resolution Slides Now Possible From Mac Applications

Presentation Technologies Inc. (Sunnyvale, CA) has announced that Mac users can now employ its ImageMaker slide generator to create high resolution 35mm slides from a variety of Macintosh applications. The offering, which is based on a proprietary technology that allows for the highest possible (8,000-line) resolution, generates both text and graphic color slides for about 50 cents each. ($4,995)

Make A Note Of It With Memorandum

Target Software (1-800/MAC-LITE) has released *Memorandum* for the Macintosh. It is an electronic equivalent to 3-M Post-It notes. Notes can be electronically attached to spreadsheet cells, word processing documents, database records and graphics documents. ($99.95)

HARDWARE, ACCESSORIES & PERIPHERALS

ImagEnhancer Enhanced

Alps America (408/946-6000) has expanded the capabilities of its ImagEnhancer, a PC-based add-on board that allows users to produce plotter-like graphics on dot matrix printers. Support now includes Hewlett Packard HPG plotter commands. ($595)

AT&T Introduces Italian Made AT-Compatible PC

AT&T (408/522-5796) has introduced its AT&T PC 6310, an AT-compatible computer that uses Intel's 80286 processor. The PC 6310 is covered by AT&T's one year, on-site warranty, and is manufactured by Ing. C. Olivetti & C., S.p.A., of Italy. The PC 6310 is equipped with 512K of RAM and is expandable to 7 MB of RAM. The unit is available in 20, 40 and 68 MB hard disk versions with a 1.2 MB floppy disk drive. The PC 6310 also has space for a third drive and up to 80 MB of storage. Pricing ranges from $3,045 (Model 31) to $5,795 (Model 36).

CCT Ships New Line Of Concept Card

CCT (201/370-5000) has started shipments of its new line of Concept Card self-contained hard disk drives on a card. There are four models, all utilizing VLSI chip technology: 21, 32, 42 and 63 MB, priced at $599, $699, $1,499 and $1,699, respectively.

The Big Picture From E-Machines

E-Machines (609/866-1187) has introduced The Big Picture, a 17-inch display offering screen resolution of 1024 by 808 pixels. It is now available for the new and original Mac machines. The large rectangular (landscape) format allows nearly two complete 8 by 10 inch pages to be shown by most productivity programs. ($1,995).

Two New Releases From General Computer

General Computer (617/492-5500) has introduced HyperCharge 020 a processor-enhancement board for the new Mac SE computer. It allows the SE to run as fast as Apple's other new computer, the Mac II. The HyperCharge 020 features a 68020 microprocessor, 1 MB of RAM, and an optional 68881 floating point coprocessor. General Computer has also released HyperNet 2.0, the second release of its HyperNet file-serving software. HyperNet 2.0 fully supports Apple's MFS and HFS file systems and all leading hard disk drives for the Mac. It is also compatible with all leading AppleTalk applications and can coexist on an AppleTalk network with Apple's new AppleShare file server. Pricing is $1,499 and $299, respectively.

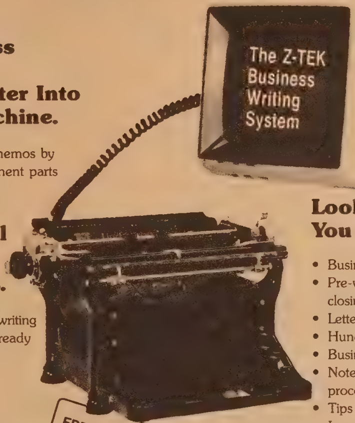
Kinetics Connects Mac SE To Ethernet Environments

Kinetics, Inc. (415/947-0998) has introduced EtherPort SE, an internal Ethernet controller board for the Apple SE computer. This is a direct connection from the SE into an Ethernet LAN environment and allows the SE to communicate with a diverse range of Ethernet-based computer systems. With EtherPort SE, a network of Mac computers can transparently execute existing AppleTalk-based programs with a bandwidth 40 times the size of standard AppleTalk. ($850)

Makes Your Mac A Mini

Levco (619/457-2011) has unveiled its Prodigy SE, a performance enhancement board for the Macintosh SE that plugs into the SE-BUS slot (internal

Are You Still Using Your Computer Like A Typewriter?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expansion bus) and transforms the computer into a minicomputer-class workstation. This makes the SE capable of running Mac applications over 100 times faster. The board features a 16 MHz, 32-bit Motorola 68020, 1 MB of RAM, and a built-in non-volatile RAM disk. The SE board provides an internal expansion bus for connecting additional internal devices. Expansion capabilities include up to 8 MB of RAM, a Motorola 68881 and paged memory management with a Motorola 68851. ($2,000 for basic board).

Lowdown WORM

Lowdown (408/438-7400) has announced the first high capacity Write Once Read Many (WORM) optical laser disk for the Mac computer. The unit is available with 400 MB or 800 MB and connects to the SCSI bus. The removable optical media has a projected life of 10 years.

Quick Draw Metheus

Metheus Corporation (503/640-8000) was the winner of the First Annual Graphics Card Shootout held Jan. 29, 1987 in New York City. The Metheus 1000 Series Display Controllers have the fastest drawing speeds, and require only a single 8 bit slot in ay PC, XT, AT, 386 or compatible. Prices begin at $2,995 for the 4 bit-plane 1004.

MDIdeas Introduces SuperSonic Digitizer

MDIdeas, Inc. (415/573-0580) has a new product for the Apple IIGS. The SuperSonic Digitizer enables users to input audio directly into the power Ensoniq sound chip. Users can record, edit, and playback voices, music, and sound waveforms. This is an add on board to the MDIdeas SuperSonic stereo card and gives the user functions of an additional card without using an additional port. ($39.95).

Large Screen Capability For The New Mac SE

Micrographic Images (818/407-0571) has announced MegaScreen SE and MegaScreen SE*M, which offer large screen capability for the new single-slotted Mac SE computer. The new products support several large-screen high-res displays in both vertical and horizontal formats. Both products are base-priced at $1,995 and are bundled with a 19.5-inch monitor with 1,024 by 900 resolution.

New Color Monitor From Mitsubishi

Mitsubishi Electronics America, Inc. (213/515-3993) has a multi-application color monitor that is fully compatible with the IBM MDA/CGA/EGA/PGC and Monochrome Hercules graphics boards. The Diamond Scan monitor has unique scanning circuitry allowing for a resolution of up to 800 x 560. It sells for $889.

Desktop Engineering Applications For The New Macs

National Instuments (512/250-9119) has announced a family of plug-in cards for the Mac II and Mac SE computers. They enable desktop engineering applications in laboratory automation, process monitoring and control, electronic test and measurement, analytical chemistry, production control, factory automation, energy management and life science research. For the Mac II computer, the cards perform functions such as IEEE-488 instrument control. The cards are offered with high-level language support as well a LabVIEW support. Pricing starts at $395.

Memory Expansion For The Mac From National Semiconductor

National Semiconducter (408/721-5000) has announced a 16 MB memory expansion module for the Mac II. The module uses 1 megabit DRAMs and consist of an eight MB motherboard and an eight MB daughter board. When installed as a mother/daughter combination, the module will occupy a single card slot. The board is designed to provide full 32 bit native mode addressing, and will provide for memory capacities up to a four gigabyte allowable maximum. Twenty-four bit address mode is also supported and a RAM disk simulator and print spooler will also be included.

Printer With Internal Networking Capabilities

Output Technology Corporation (509/926-3855) has announced the TriMatrix 850 PrintNet, the latest in the company's series of 850 cps printers. This is the first dot matrix printer to feature built-in networking capabilities. As many as five networking users can connect directly to the unit through resident serial ports. ($2,995)

TurboTouch 1910 Has The Personal Touch

Personal Touch Corp. (408/246-8822) has introduced TurboTouch 1910, a 19-inch, color, touch screen monitor for VARs, OEMs, and System Integrators. The monitor accepts RGB and NTSC signals and is compatible with IBM and most

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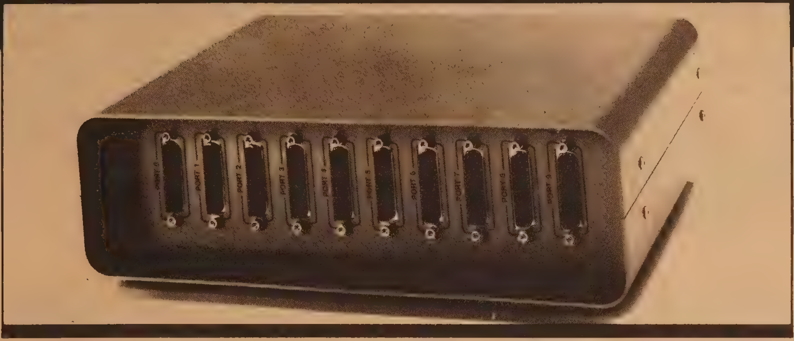

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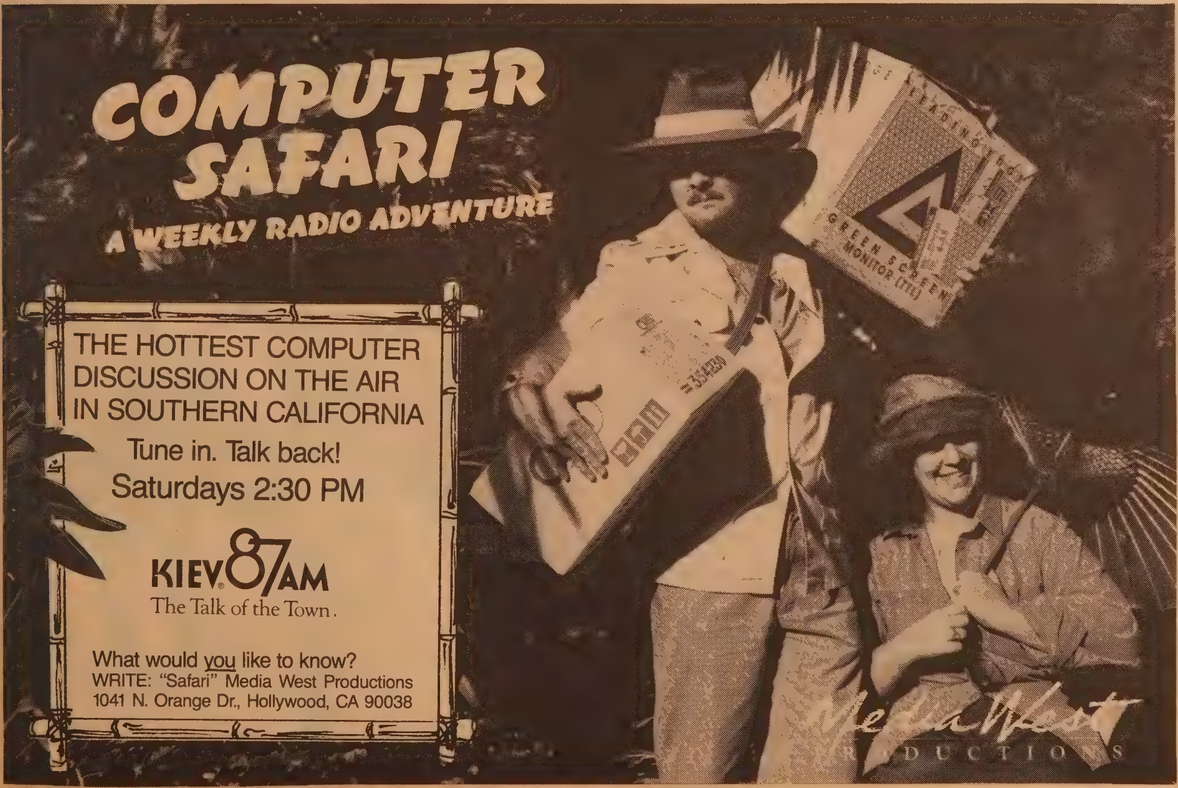

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other PCs. The monitor is a Sony Trinitron 1910. It has a resolution of 350 TV lines and 640 by 240 pixels. The integral touch screen has a resolution of 256 by 256 and can be interfaced to the RS232 serial port or the analog, game port.

New Products For The Mac SE From Radius

Radius, Inc. (408/732-1010) has announced the Radius Performance Accelerator and the Radius Full Page Display for the Mac's new SE computer. The Radius Accelerator, priced at $995, is a 68020 accelerator board that provides three to four times the speed of the standalone Mac SE. The Full Page Display, at $1,1995, is a 15-inch screen for full 8½ by 11-inch document preparation.

Digitizing Tablets And Tables From Seiko

Seiko Instruments USA Inc. (408/943-9100) has introduced an eight-member family of digitizing tablets and tables. They range from an 8 by 12 inch desktop tablet to a 42 by 60-inch floor-mounted table, featuring 1000-lines-per-inch resolution and accuracy as high as 0.005-inches. The Seiko Screenplay tablets are desktop units that typically function as data input devices attached to PCs or terminals and are most suited for CAD work. The tabletop or floor-mounted units are for communication directly with mainframes.

LaserView Display System For Mac SE and Mac II

Sigma Designs (415/770-0100) has introduced its high resolution LaserView Display System in two new configurations to support the Mac SE and Mac II computers. LaserView has a display of 1,664 by 1,200 lines. LaserView consists of a high resolution adapter board and a choice of a 15- or 19-inch monitor. Both are landscape mounted and have paper-white phosphor screens.

STB Offers Memory Expansion For AT Computers

STB Systems (214/234-8750) has added the Grande Byte Plus multifunction board to its current line of AT compatible products. This 16-bit board provides memory expansion up to 2.5 MB on one board through the addition of 64K or 256K chips. For I/O needs, the board provides a standard parallel printer port and an AT style 9-pin connector serial port. ($319 for zero memory, $1,495 for 2.5 MB)

Whisper Sound Enclosures For Printers

Sun-Flex Company, Inc. (415/883-1221) has introduced acoustic enclosures for printers. The Sun-Flex Classic Series Whisper Sound Enclosures cost $350 to $565 and are available in models for most popular printers. They feature an illuminated front-mounted switch control to power to a whisper-quiet fan and an internal AC power outlet for the printer. Rear and bottom feed slots accommodate most printers.

Ultra-High Resolution And Larger Viewing Area For the Mac II

SuperMac Technology (415/964-8884) has announced two ultra-high resolution graphics controller boards for the new Mac II computer. The color Spectrum and black and white Grafix boards work with the company's new 15- and 19-inch high resolution graphics monitors, as well as any standard analog or TTL monitor. They offer more than four times the viewing area of the original Macintosh. The Spectrum can be minimally configured for 16 fixed colors with 256K RAM and no color chip, or a user-selectable 256 colors from a 16.8 million color palette, using an 8-bit color chip and 768K RAM. Both Spectrum and Grafix can be used simultaneously to drive two monitors.

Tatung's Enhanced Color Graphic Adaptors

Tatung Company Of America (213/979-7055) has a new idea in enhanced color graphics adapters. The Supreme EGA board runs all EGA, CGA, MDA, Hercules software and 132-Column text display. The board can perform these functions with any IBM compatible EGA, CGA, monochrome, TTL, or composite monitor and sells for $399. This is a reverse concept compared to the multi-sync monitors.

Toshiba Enhances P351C Printer

Toshiba America (714/730-5000) has introduced the P351C Model 2, an enhanced model of its three-in-one printer. The Model 2 is a 24-pin dot matrix unit capable of color text and graphics. A new LED front panel and repositioning of the dip switches make the printer easier to operate.

A New "Supertwist" On Toshiba's Portable Computer

Toshiba America (714/583-3000) has announced that its T1100 PLUS portable PC is now available with "supertwist" liquid crystal display. This allows more light to pass through the display and bounce back, creating darker characters and improved screen contrast. The price is $1,999 for the 256K unit, and $2,399 for the 640K unit.

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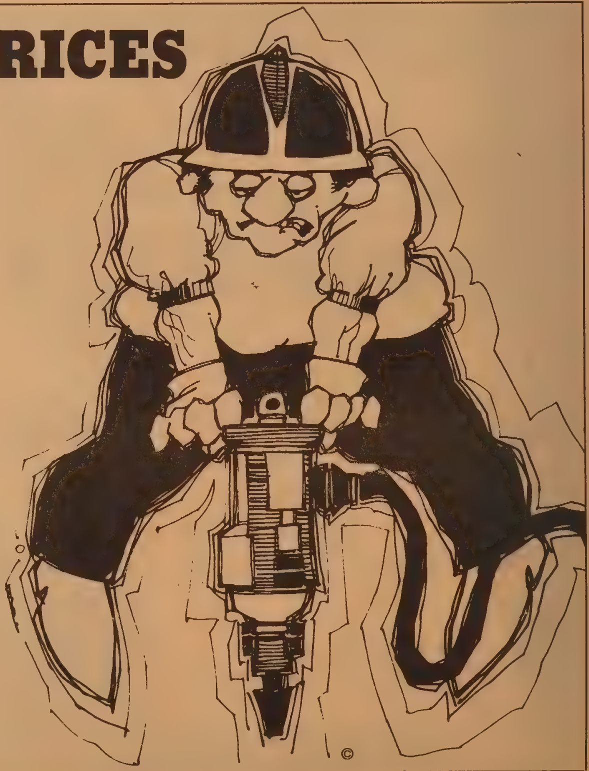

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Zenith Introduces New PCs Offering Video Cards And Added Memory

Zenith Data Systems (312/699-4839) has introduced its Z-150 series of PCs offering EGA and Hercules-compatible video cards. They also accept EMS upgrade chips, which permit 1.25 MB of added RAM without using an expansion slot. Five models range in price from $1,749 to $2,799.

ConoDesk 300

Conographic Corp. (714/474-1188) has announced development of the ConoDesk 300, a TMS34010-based product line for the IBM AT and the Compaq 386. The ConoDesk 300 series is built around custom silicon and 34010 implementations of the Conographic curve technology and font compiler. The ConoDesk products integrate Conographic technology into color graphics adapters, laser RIPs, scanner interfaces, and video capture capability. The Conographic font compiler includes interpreters for PostScript, Interpress and DDL, printer emulators for HP LaserJets, Xerox 4045 and IBM 3812, and drivers for Microsoft Windows and HALO.

NETWORKING & COMMUNICATIONS

cc:Mail Enhancements

PCC/Sytems (415/321-0430) has announced new prices for its cc:Mail product line. *cc:Mail* for LAN's ten user Starter Package at $995, has been reduced to $795. A new addition to the Starter Package is cc:Mail Notify, an automatic, RAM-resident, new message notifier which was previously sold separately. The five-user Expansion Kit, at $450, has been reduced to $395. The 25- and 100-user Expansion Kits have been replaced by an Unlimited User Expansion Kit, priced at $2,495 per server.

Tallgrass Offers Software Swap

Tallgrass Technologies (913/492-6002) has launched a new dealer program called The Great LAN Swap. This new program allows Novell customers to swap their Netware software for Tallgrass' Vines virtual networking software. Customers simply return Novell software to their authorized Tallgrass retailer and receive Vines software free of charge with the purchase of a LanCourier network server.

Tangent Bridges The PC/Mac Gap

Tangent Technologies (404/662-0366) has announced *PC MacBridge/AFP*, a software package that allows IBM micros to access Apple's AppleShare file server. *PC MacBridge/AFP* is fully compatible with the published AppleTalk Filing Protocol (AFP). It allows PCs to be easily integrated into a networked server environment. *PC MacBridge/AFP* works with *PC MacBridge/ATB*, an AppleTalk board for the IBM PC that enables the PC to function as a node on an AppleTalk network. This allows the PC to communicate with other micros on the network and PostScript laser printers. Once the software is installed, the PC becomes a client of an AFP server, and can access both PC and Macintosh files. ($150)

Unisoft Develops New Operating System For The Mac II

Unisoft Corp. (415/644-1230) has announced its participation in the development of a System V operating system for the new Macintosh II computer. Called A/UX, the version of System V for the Mac II is an implementation of AT&T's UNIX System V and Berkeley Software Distribution(BSD) environments with UniSoft and Apple enhancements. The new system includes TCP/IP protocols; UniSoft's System V implementation of Sun Microsystems' Network File System (NFS) and AppleTalk for UNIX. A/UX meets the System V Interface Definition (SVID) standard and has passed the System V Verification Suite (SVVS). The company has also announced high-performance optimizing Fortran 77, Pascal and C compilers with the A/UX operating system. These compilers were developed by Green Hills Software and implemented for A/UX by UniSoft, significantly decreasing the size and increasing the speed of a program over other compilers.

Waterloo Improves Port

Waterloo Microsystems (404/441-9252) has a new version of Waterloo Port, an advanced LAN for PC networking. Port 2.40 provides improved speed, full NETBIOS support, and foreign language keyboard support. ($1,695)

Network SmarTerm

Persoft, Inc. (608/273-6000) has announced new verisons of two of its *SmarTerm* terminal emulation software packages. Users of these new versions who purchase an optional network kit can now communicate with host computers through either the Ungermann-Bass Net/One or Bridge Communications EtherTerm network systems. Both terminal emulation packages allow IBM micros or compatibles to communicate with larger mainframe or mini hosts. The new version, *SmarTerm 220*, sells for $195, *SmarTerm 400 version 3.2* for $149.

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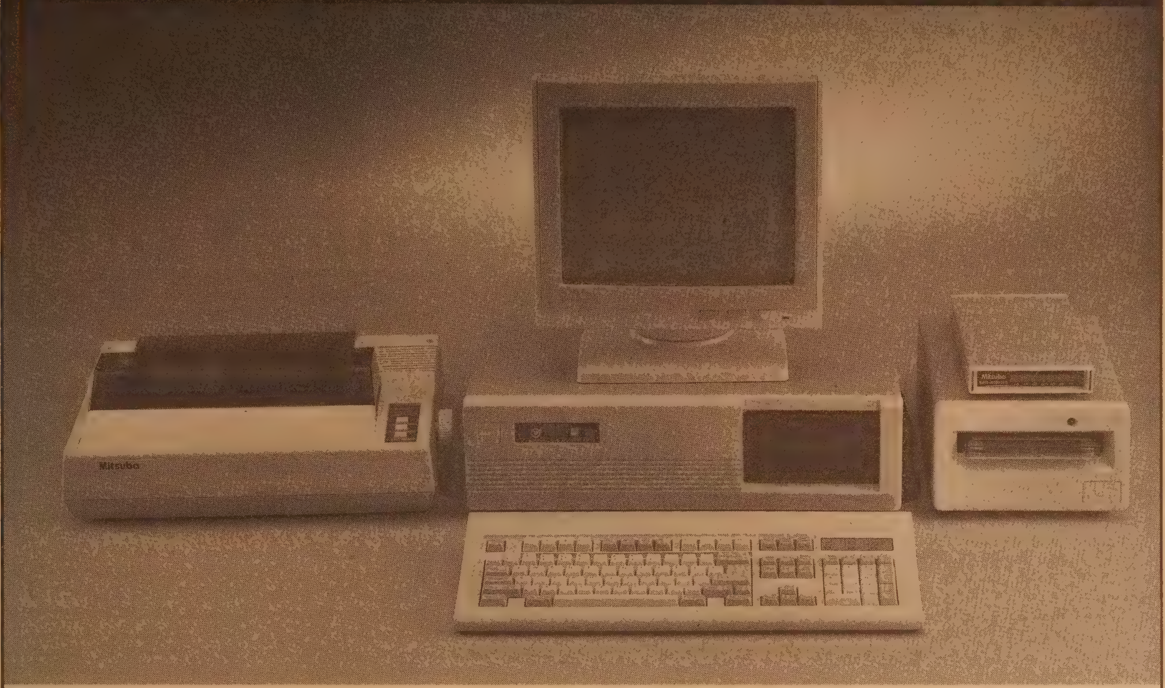

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By Birrell Walsh

Here's my dream as the owner of an IBM clone: Imagine having three programs on the screen at once. These are all actively working programs, with their data and processing available to use. No "screen snapshots," the saving of screens in memory as the deathmasks of departed programs. We are talking about three genuinely simultaneous programs.

In other words, I want *all* my programs to be memory resident. Not just notepads and calendars, but everything: spreadsheets, databases, terminal programs, drawing programs.

It would be nice as well to have a fully graphic interface. Then those Macintosh owners would stop snickering at us. It should let us use what the technically-inclined call the bit-mapped screen.

I want to use the various schemes for extended memory that are on the market, so I can have more room; it would also be good not to be forced to use that extended memory, so the windowing program should not be memory-hungry.

Let's have it use the mouse, if we have one, but not require it. And let's have it support the various color and black-and-white graphics systems that have grown up for the IBM and its clones.

That's the dream.

HERE'S THE REALITY

Since advanced forms of DOS (which will officially allow multitasking) continue to recede into the future, we look to windowing software to find out if our dream has arrived. The two strongest contenders at the moment are Quarterdeck's *DESQview* and Microsoft's *Windows*. On my 10-Megahertz AT system, they both run at high speed. They are so full of features that it's hard to do them justice.

Both products bring a full, multitasking environment to the IBM family. "So what?" you ask. A multi-tasking environment can help you in two ways. It can do something—or several things—in the background. That means that while it prints, or recalculates a spreadsheet, or gets information from an online service through

Marketing Strategies: Microsoft Vs. Quarterdeck

InfoWorld's annual awards are a good indication of who has made breakthroughs in the software world. *DESQview* and *Windows* both got awards this year.

InfoWorld's editors seem to like Microsoft and its product. Some issues of *InfoWorld* have four or five articles about *Windows,* as if there were no serious competition. This year, *Windows* got the "Editor's Choice" award.

InfoWorld's readers and its writers, on the other hand, are demanding users. The writers sometimes treat *DESQview* as the standard that other "multitasking" software must match. The readers voted *DESQview* the "Best New Idea of 1986."

These two awards reflect how each company is going about its struggle to be number one. We talked with the publishers of *DESQview* and *Windows* about their respective strategies.

Quarterdeck—Compatibility, Flexibility

Terry Myers is the president of Quarterdeck Office Systems, which publishes *DESQview.* Their strategy to date is not to try to set standards, but to be compatible with other software. "Let the users choose their own software," says Myers. Quarterdeck will not try to make a "fully graphic" interface, for instance, until there *is* a graphic standard for the PC world. Quarterdeck is even softpedaling its own *DESQview Companions* series of utilities—four programs that provide a calculator, a notepad, a full-featured terminal, and a datebook. Myers says that *DESQview's* philosophy from the beginning has been, "Let each user build his/her own workstation."

Conservative about trying to set standards, Quarterdeck is aggressive in supporting hardware. *DESQview* can be run on machines from the original no-graphics-board IBM monochrome to EGA-equipped color machines. It was bundled last year with AST boards. Now it is supporting the Compaq 386 machines, and it is bundled with Advance Logic Research's 386 PC—the "Access"—and PC Design's 386 "Grande Vitesse."

Myers says she intends *DESQview* to compete in quality, not price. *DESQview* alone costs as much as *Windows* with all its utility programs. *DESQview* with *DESQview Companions* costs twice as much as *Windows.* Myers points out, however, that there are hidden costs to *Windows;* she mentions the need for a graphics board to support its all-graphics interface, the need an AT-compatible machine for speed, the need to wait for or acquire *Windows*-compatible software to fully use the program.

"Satisfied users are our prime advertisements," says Myers. A cliche, but the "Best New Idea" award from *InfoWorld* readers is quite a free advertisement.

Microsoft—Setting The Next Standard

Marty Taucher is Public Relations Manager for Microsoft. He says that Microsoft intends *Windows* to become the dominant interface for users in the MS-DOS world.

While *DESQview* makes the user's present software able to multitask, *Windows* is a standard that software will be designed to meet. Taucher says that falling prices for graphics boards and monitors have made users eager to upgrade to a fully graphic interface. That interface has pull-down menus, icons, scrolling bars—and all these things make the computer easier to use. Taucher says that Microsoft chose the "tiling" windows (rather than *DESQview's* overlapping windows) based on research which showed that tiling made the most effective use of screen space.

Microsoft's plan to make its product the dominant interface would seem ambitious in any other company. But Microsoft has already done that once.

Is Microsoft depending on the weight of its name to sell its product? Taucher replies, "This marketplace has proven time and time again that it is not the company's name, but whether a particular product really meets the user's needs, that matters. People are buying Quarterdeck products because they are interested in doing the best they can with the existing applications. People who buy Microsoft *Windows* are doing it to upgrade. The graphics world is here today."

Will IBM bundle *Windows* with its future machines? "No comment," says Taucher.

Microsoft says there are 125 independent software vendors preparing software for *Windows* at this time, although only 20 to 30 applications have appeared. Software for *Windows* has one thing that *DESQview* cannot claim: the ability to exchange graphic data with any other *Windows* software. If Microsoft succeeds in its plan to set the new graphic standard, *DESQview* may find that the standard it has to accept belongs to *Windows.*

Has the clout of *Windows* driven *DESQview* from the field? Surprisingly, no. The bottom line: *DESQview* claims 400,000 copies sold in 1986; *Windows* claims 500,000 copies in the same year. This battle has just been joined.

—Birrell Walsh

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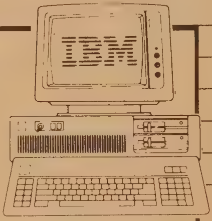

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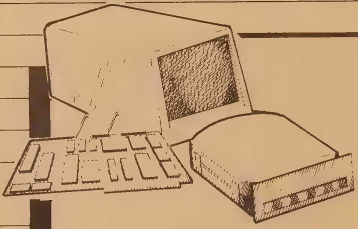

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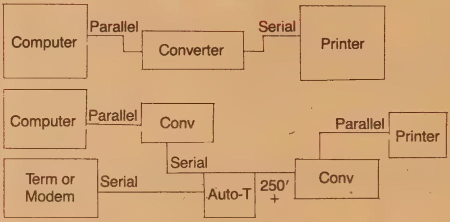
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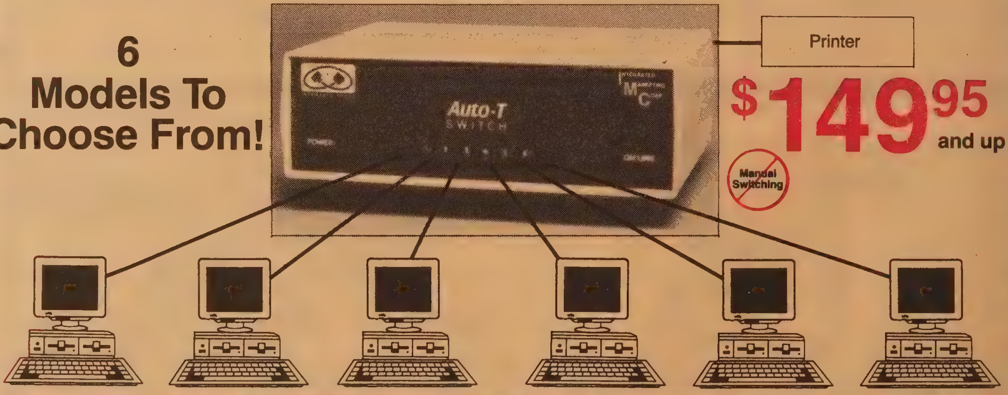
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DESQview's windows are much more usable than those of _Windows_. They can be opened to full screen or re-shrunk to small size with a "zoom" command. The smaller windows can be resized and moved with your mouse or the keyboard's arrow keys.

the modem, you can be working on another project. It does not really do all these things at the same time—in fact it switches rapidly among the projects—but the effect is very much the same. It means that your computer is not "out of service" when it has a long task to do. Multi-tasking makes it time-share between the background task and what you are doing now. It's like having two computers, although each is a little slower than the computer with only one task. But since you usually spend much of your time in an application thinking about what to write next, or considering a result you have just gotten, the computer is just making use of time you waste.

The second way a multi-tasking environment helps you is that it lets you juxtapose programs. Most projects require many kinds of information and many kinds of tools. With a multitasking system like *DESQview* or *Windows*, you can have all the information and the tools available at the same time. A businessperson talking on the phone can open a spreadsheet and read prices to a client, open a word processor to start a letter about the conversation, and then go back to the spreadsheet to figure what would happen to the profit margin if the client got a discount. The spreadsheet calculation can be copied whole into the word-processor, which is still open on the same screen. The businessperson can then open an outlining program in which the things-to-do list is kept, to make a note about follow-up.

When I program in C, I keep the compiler available in one window, an editor for writing the program in a second, and a debugger (to figure out what went wrong) in a third. None of these programs was designed to be RAM-resident, but the windowing software makes them all as co-resident as *Sidekick* or *SuperKey*.

Windows has all the clout of Microsoft behind it. We all waited for *Windows*, and when it came out, we ran to get it. You can get it for $65.

It's feature-laden: it has a word processor, and a notepad as well. It has a robust drawing program, a clock with moving hands, and a calculator. It has games. It has a calendar. It uses icons to hold resident but inactive programs at the surface of the program. It has a clipboard to carry data from one application to others. It has a simple terminal program.

I opened *Windows* and (with a little work) convinced it to run my favorite terminal program in a window. Then I was able to check in with an online service while, in another panel, I drew a picture in the *Windows Paint* program. Ah, glory! Everything one could want in a windowing program! Watch out Macintosh!

A moment later I tried to load *VP Planner*, my spreadsheet. *Windows* locked up irretrievably, and my disillusionment began.

There is always some little problem with it, alas, that keeps it from being as usable as you want. The *VP Planner* problem turned out to be that *Windows* would not allow it to run in a window—or at least I couldn't make it run in one. Those wonderful sketches that you make in *Windows Paint* can be transferred to *Windows Write*—but (says a little note on p. 123 of the *Windows* manual) you cannot paste graphics information into a "standard application." That's an application other than the ones that come as a part of *Windows*.

Windows has a pleasant little terminal program, but it doesn't support commmunications port #4, which I use for my modem. *Windows Write* does not support my letter quality printer. It is possible that *Windows* has solutions for these and all the other annoyances I experienced with it, somewhere in its three-volume manual set. Why should a user confront all this frustration in using what is supposed to be a background product?

Windows would win the contest for graphics without a contest *if* the Microsoft people had not chosen a particularly ugly form of window. *Windows* windows "tile": instead of overlapping (as do *DESQview*'s windows), the program uses smaller and smaller, non-overlapping windows. The first application uses the whole screen (except for *Windows'* large command lines). The second application uses one-half of the screen, while the first is squeezed into a half-screen window. Further applications use smaller and smaller windows. Although they can be "zoomed" to full screen, the windows are resized primarily by removing applications from the screen.

DESQview's applications can be in a messy pile of overlapping but large windows; any one of the applications can be brought to the top of the pile. These windows can be opened to full screen or re-shrunk to small size with a "zoom" command. The smaller windows can be resized and moved with your mouse or the keyboard's arrow keys. *DESQview*'s windows are much more usable than those of *Windows*.

In fact, just about everything about *DESQview* is more usable than *Windows*. *DESQview* has a well-laid-out and well-indexed spiral bound manual. It has a tutorial that is exactly the right length to be a one-sitting lesson, and to get you hooked.

DESQview undertook a smaller mission than did *Windows*, and carried it off impeccably. *DESQview*'s simplicity is based on Quarterdeck's

The Users Speak

Both Microsoft and Quarterdeck suggested that we talk to their satisfied customers. I asked for names, and got one each: a software developer (Art Shane of Strawberry Software) for *DESQview*, and a systems designer (Kevin Hynes, an independent consultant working at Citibank) for *Windows*.

Hynes is working with the "Credit Admin" Group at Citibank in New York. The group is responsible for making financial analyses of companies. The analysis may be used by Citibank in deciding whether to extend credit to a company, or it may be used by an outside client deciding on a merger or acquisition.

"At Citibank, the group can choose its own software package," says Hynes. "We chose *Windows* because it lets us integrate financial software, word processing and graphics easily."

Hynes' client group uses Microsoft *Word* for word processing, *Micrografx Draw* from Micrografx, Inc., for graphics, and Aldus *PageMaker* for their final layout. "Integration is the primary advantage," emphasizes Hynes. "With material coming from several different programs, a tiny change can take a lot of time. Without *Windows*, you always have to keep track of versions: will this program read data from that version of that program? With *Windows*, it's just a matter of cutting and pasting. It's not a 'hot-link.' The changes don't move automatically into the final report. But cutting and pasting is fast and easy.

"*Windows* is easy to use. The hard part is learning to be a layout person. You have to have someone with an artistic sense to do that."

Why not use a Macintosh? Hynes replies,"We're doing a comparative study of the Macintosh versus a PC with *Windows*. The Mac clearly is the way to go if you're a professional layout person, but in just a year the gap has closed dramatically. In two years desktop publishing on the IBM will surpass the Macintosh. We want to leverage the software we already have."

Hynes used Digital Research's *GEM* until *Windows* came out. "We switched because of the Microsoft name. The industry was starving for a standard, and Microsoft had the name and the technical expertise. You buy *Windows* for the same reason you buy an IBM PC. Everyone is writing software for it."

Is *Windows* the solution for everything? "I wouldn't recommend it if the user had to swap things to and from disk. But as a 'context switcher' it's great," says Hynes.

Art Shane is President of Strawberry Software in Watertown, Massachusetts. The company is developing a new application that will use *DESQview*. The application, *A-Cross*, is a cross-tabulation program that does a lot of number-crunching. "We wanted the user to be able to use word processing or a spreadsheet while the cross-tab was going on in the background. *A-Cross* produces *Lotus* spreadsheets, so it's good to be able to open *Lotus* in another window.

"*DESQview* is a very simple program for the end-user—we like the way it allows you to size and position windows and the way it allows you to use macros," says Shane.

Why didn't Strawberry Software use *Windows*? "We didn't need graphics. I'm not knocking *Windows*; you can do a lot of things in *Windows*. But takes a lot of work. Using *Windows* would have imposed limitations—it doesn't work on a mono system without a graphics card, and it takes memory for the graphics system. *DESQview* has [IBM standard] Topview functions. That made developing an interface trivial."

Rick Pendzick, Vice President of Software Engineering, adds: "*DESQview* uses the [IBM standard] Topview applications program interface. You can create a screen, build a simple interface around it, and get it up and running in an amazingly short period of time, all because of that Topview applications program interface."

Weren't they concerned about the power of Microsoft's reputation? Says Shane: "Most of the copies of *Windows* are bundled. No, the name was not an issue."

—*Birrell Walsh*

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early admission that the IBM family consists of text-based machines. *DESQview*, therefore, uses text windows for most applications. On my Hercules-based system, graphics applications must work full screen. All other applications work cheerfully together in text-only windows. *DESQview* also guessed that most purchasers already have word processors, notepads, and paint programs if they want them. *DESQview* does not provide them.

I was repeatedly frustrated using *Windows*. I was not able to get my spreadsheet working properly without a call to Microsoft's support line. After my tour of Microsoft's automated telephone-routing system, a helpful technician solved my problem. As soon as I hung up, another puzzlement arose: it seemed to me that the only way I could retire my full-screen application was to reboot my system. No doubt my fault—if I had studied the manual longer I bet I could have found a solution. I took an easier path: I dumped *Windows* and went back to working in *DESQview*.

To compare support between the companies, I called Quarterdeck and presented them with an analogous problem. No robot phone system this time: I found pleasant people and a patient technical-support person who got a finicky program comfortable in *DESQview*.

FEATURES

I found that *DESQview*'s windows were large enough, and manipulable enough, to make programs really co-resident. *DESQview* permits you to have up to nine windows open on the screen at once. Of course, your memory will fill up much faster than that. *DESQview* and *Windows* both have automatic swapping, which will move the application to your disk without closing it. You can then bring it back from disk by selecting that window again. With a floppy disk, this can be tedious. With a hard disk, it is quite expeditious. With a RAM disk, the "**Swapping..**" window merely flashes on the screen.

Even with swapping to disk, both programs take up so much memory for themselves that it is not possible to run the largest applications—*Paradox* or *Javelin*, say—without expanded or extended memory boards. *Windows* leaves you 420K, while *DESQview* leaves about 455K for your programs.

DESQview's "Mark and Transfer" function is friendly and thoughtful. You can transfer text easily enough. Quarterdeck's people have also included a facility to transfer text into a spreadsheet. Most spreadsheets require **<enter><down-arrow>** to enter text into a cell and then move one cell down. *DESQview* lets you do this. *DESQview* also has a function to strip text characters around numerals and allow them to be transferred into a spreadsheet as pure numbers. This is useful with spreadsheets that would treat "Total: $13.05" as text rather than as a number. Transferring it as text would put "Total: $13.05" in the spreadsheet. Transferring it as a number would put "13.05" in the cell. *DESQview*'s Mark and Transfer system does not handle graphics at all.

DESQview's thoughtful attitude shows in the inclusion of a detailed macro facility. A lot of us use macros, but a macro program is going to take 50 to 100 thousand bytes in an already crowded environment. *DESQview* allows you to make macros for *DESQview* itself. They can be invoked only when the *DESQview* menu is open, but they can open and close applications and move information between them. Other *DESQview* macros can be defined for the applications; these application-specific macros are loaded when *DESQview* opens a window on the application, and are active only when the application is active. A *DESQview* macro can call a macro in any application. I set one up to open DOS and call the SHIPDISK routine to park my hard-disk head. I am writing another to log my usage for the IRS.

Windows, alas, has no macro feature.

CONCLUSIONS

When you play with a lot of software, you get to feel that software falls into two classes: that written for the programmer, and that written for the user. *Windows* seems written for the programmer, on the theory that it's going to be a new standard. After all, the "MS" in "MS-DOS" is for Microsoft. They could very well capture the windowing market by the power of their name alone. It worked for IBM, didn't it? Software written for the user, on the other hand, depends on winning over the buyer with good features rather than intimidating him or her with "Nobody ever got fired for buying ... ". It depends on friendly word of mouth.

Beginning this review of windowing software, I was prejudiced in favor of *Windows*. *Windows* is graphically based. Like *GEM*, it is an attempt to bring the "look and feel" of the Macintosh to the MS-DOS world, and it is packed with goodies. Usage changed my mind. *DESQview* is agreeable, reliable, and flexible. I did not find *Windows* to be any of these things.

Experimenting with *Windows* over several months, I always spent more time in the manual than I did actually using the program. *DESQview* I have had for only one month, and I have installed it in my AUTOEXEC.BAT file so it comes up when I boot my computer. I like it, I can use it without keeping the manual open beside me, and *DESQview* really makes me more productive. Maybe *Windows* will come through in some future version. For now, *Windows* promises but *DESQview* delivers. ☐

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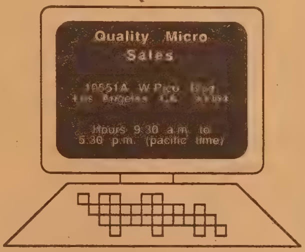

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AST Makes The Corporate Connection

By Jeff Spurrier

Connectivity may be the buzzword on everyone's mind these days, but for Thomas Yuen, one of the founders of Irvine-based AST Research, the move into expanded data communications in the PC market was obvious a few years ago.

In an interview with *MicroTimes* in April, 1985, he noted: "Based upon our experience in the minicomputer field, we felt that once you got the PC into the office, you had to be able to communicate with other computer systems. So aside from just coming out with memory expansion and multifunction products that fit what were then the needs of the business community, we also came out with several data communications products that were specifically aimed at the business office environment. I think that if you look, you will find that AST was the first company to offer microcomputer-to-mainframe-computer data communications products for the IBM PC."

It may come as something of a shock to micro users, but AST is no longer simply a small manufacturer of highly reliable PC enhancement boards. The company that SixPak built now offers a full range of products, ranging from a high quality, high performance AT compatible micro to 2 X 9600 modems, micro-to-mini and micro-to-mainframe emulation boards, and the new Mac286—a 286 computer-on-a-board that allows a user to run DOS applications on a Macintosh II.

And, oh yes. They also make the SixPakPlus.

Traditionally, the three major connectivity markets have been micro-to-midrange (such as 3X minis), micro-to-mainframe, and LAN hookups. And of course when we talk about micros, we used to mean IBM compatible machines. No longer.

"I think the Macintosh II is undoubtedly a machine that will be in businesses to a large extent, along with the SE," says Ashok (Ash) Jain, head of AST's Apple Enhancement Group.

That comment might have elicited guffaws from dedicated PC power users just a few months ago. Right, they'd snicker, businesses like typesetters and animation houses where those pretty graphics are more important than the need to deal immediately with the budget on a *Lotus* spreadsheet for the head office. Let's talk *real* business here.

Hard on the heels of the Mac II's announcement, AST *is* talking real business—with pretty graphics to boot. In early March Jain's Apple Enhancement Group, working hand in hand with Apple and Phoenix Technologies, launched a series of new AST products which bring MS-DOS right into the core of Apple's hottest new machines.

The two new boards, the Mac86 and the Mac286, let Macintosh users run in a Mac window software written for MS-DOS machines, *at XT and AT speeds*. Data can be copied and pasted between the two environments, and various Mac desk management programs and peripherals can be accessed easily. Users can either hook up an external 5.25 disk drive or directly install copy-protected DOS programs onto a Mac hard drive. It's the ultimate marriage of convenience that Apple adherents have dreamed of for years.

"So Apple has provided the MS-DOS solution," says Jain. "Big deal. Really, what we have seen in the last two months is a tremendous amount of eye opening as to what the MS-DOS environment—if implemented the way this has been—can do in a Macintosh. You have the highest level of connectivity. Two operating systems can coexist side by side and give you the best of both at one time. That's really what people are just beginning to get a glimmer of with these products.

"Let's take one very good example right here at AST. Everybody at AST uses PCs. There's one department that doesn't, which is the Apple divison. We use Macintoshes. Everybody else in the company uses *Lotus* spreadsheets. There is absolutely no way for us to take that (data) and use it in a Macintosh. We are all networked here, and if we had one Mac II I would love to put that (286 board) in, and then I would be able to take my budget—which comes in a *Lotus* spreadsheet on a 5.25 inch floppy—move it into *Excel*, let every department do their thing on their Macintoshes, integrate it back, and give it back to the IBM division. That's a beautiful, perfect application of how it can be used. There are other ways of interchanging data by using serial ports and ASCII, but there is nothing like this to get you the most efficient way of being in both environments at the same time."

Such free floating co-existence is bound to interest most individual Macintosh users, as well as corporations and federal agencies which demand MS-DOS compatibility. Now there is indeed a choice. And of course it wasn't always that way with Apple.

Two and a half years ago, AST started the Apple division. At that point Ash Jain, a native of Punjab, India and a graduate of Cambridge University and the Engineering College of the University of Jabalpur, was dividing his time between the IBM side of AST's business and Apple. At the time, most development involved the Apple II, while the Macintosh was being pummeled by the trade press as being simply a yuppie toy. The open architecture of the IBM helped to secure the success of the PC (and AST), and Apple was left with the hobbyist and school markets.

"Dealers who were successful and ambitious were all shifting (away from Apple) towards IBM," says Jain. "The Apple following was almost like a second class citizen because nobody was buying Macintoshes.

"The change came last year with the Mac Plus and the opening of the architecture. Business became interested in Apple, and we began to see dealers who would sell Macs but not Apple IIs. Also, we saw the PC clone market flatten out so the dealer community became saturated. Now we have too many dealers selling too many IBM PCs and compatibles, and the hope for dealers has begun to shift to the Mac because they don't have the price cutting there, and there are better margins. In 1987 the Mac dealer is beginning to look like the PC dealer."

While the new Macintosh boards aren't cheap (see box), Jain and AST are betting on the idea that Mac owners will demand the connectivity link as a feature—even if they aren't currently in need of MS-DOS compatibility. The power of the Mac boards is obvious, yet the the clean implementation of the connection doesn't "defile the feel of the Macintosh." And then there's also the as-yet-untapped potential of the 286.

"We haven't even seen software that takes advantage of the 80286 yet," notes Jain. "So this is not a one-shot deal when I get the Mac286 board. Maybe I've bought my machine and I'm really planning (only) to use Macintosh (operating system),

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PHOTO: ANN SUMMA

Ash Jain (l) and Russell Hertzberg, with the Mac286 coprocessor board.

but there still have to be very powerful application developments in 80286 which needn't appear on the Mac II right away. It extends that availability of applications on the IBM side." Now that the IBM has been brought into the Macintosh environment, one wonders if the reverse would ever be possible. Don't count on it, says Jain. "In order to bring the Mac into the PC world, someone would have to emulate a Mac; the last time someone mentioned that to (Apple's) John Sculley he said 'How fast do you want to see a lawsuit?'"

AST, on the other hand, has nothing to worry about in its Apple-related boards. The company has worked closely with Apple over the past two and a half years, standing by the Mac's makers when just about everyone else in the industry had written them off.

"If you look at every other third party company in existence, there is nobody that has supported Apple to the extent that AST has," says Jain. "You look at companies like Quadram and Tecmar—they ignored Apple completely. They didn't feel Apple had any potential.

"Which is not to say those guys were wrong. You look at all the failures Apple had had: the Apple III was a failure, the Lisa was a failure, the Mac was a failure, the IIc was criticized for being closed architecture. But we believed you don't shut down a 1.5 billion dollar company overnight. Patiently waiting and working with Apple all that time, (you develop) a kind of a relationship you can't put down on paper."

With all the excitement being generated around the Mac/MS-DOS link, does that mean that the PC is soon to be a forgotten machine? Not likely. According to Jain, in fact, the ultimate connectivity of two operating systems living in one environment should actually enhance the marketplace for both machines. Connectivity doesn't mean taking away from one and giving to the other, but rather adding to both.

"IBM is a fairly big company; people at Apple (and AST) are acutely conscious of that and we are not fooled by the fact that we have all this excitement about the Mac and what it can do in the business environment," says Jain. "That doesn't mean we're not on our toes to see what are the alternatives that IBM can come up with. And really the best bet we have is to come up with solutions and ideas that enhance the market and do not take the market share from one environment into another. Really, if you look at what the 286 does, the realization comes slowly—it is not whether you have to choose between an IBM and a Mac. It doesn't matter what you choose. For heaven's sake, get a computer! That's the message.

"Because you *can* have both the worlds. It's expanding the ability of the environments together which expands the whole marketplace. There are a lot of people who don't have computers today. Everybody says there should be as many computers as there are televisions. If that's true, we have a lot of work to do!"

* * * *

Back in 1983, Mike Krieger bought his first AST product—a Model 12 emulation package that allowed him to link his home computer to his company's System 3X mini.

"It was only a few months later, after I had got the board up and running and was finally able to work at home a few days a week, that I started seeing all these ads for the SixPakPlus," says Krieger, AST's marketing manager in charge of System 3X products. "I said 'Gee. That's the same company, AST. Look at that. They make memory products too!"

The handful of memory boards that AST pioneered in the early eighties rocketed the company from obscurity to PC stardom. And while the PC boom that helped build AST brought personal computers into homes for the first time, in corporate offices throughout America the microcomputer was still something of a joke when compared to the power and prevalence of the 3X machines—the IBM System 34/36/38 minicomputers.

"People (involved with 3X systems) never use PCs," says Krieger. "They've been working on 5250 workstations for the last eight years. PCs are anathema to them. They say 'It's too small. It's below me. Why should I get a PC? I've got my information on a 36.'"

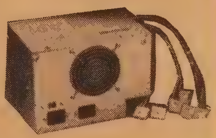
With connectivty all the rage in the computer industry, that elitist attitude has been debunked to a large extent. It's a lot cheaper and faster for a company's financial officer working in *Lotus* to have his PC talk directly to the mini than to have his secretary re-type the figures generated on a 36 into a *Lotus* worksheet. And, notes Krieger, it's not just the downward connectivity mobility of Fortune 500 companies that's making an impact here.

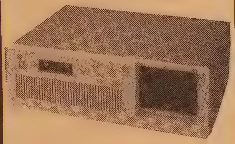
"It goes both ways," he says. "It could be the guy who's grown from a PC into a 34 or a 36 (minicomputer). In the past five years you've seen a lot more of that. A guy got a PC to start and then a second PC. He'd run payroll on one and general ledger on the other—he'd never network them. And then someone came along and said there's a System 36, you can get a desktop machine and get multiuser capability. Great! Then he spends three months at a data conversion house converting his 5.25 diskettes. Now you can bypass all that, but people just don't know. They just don't understand what connectivity really means."

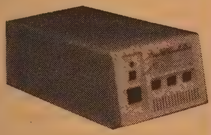
What connectivity really means is more than simply sticking an emulation card in a PC so it can receive mini-generated data. Such a hookup is really nothing more than the creation of a dumb terminal—a fast dumb terminal, granted, but a dumb terminal all the same. Products like PC Organizer (from IBM) are starting to make the intelligent workstation possible, allowing the user to work in the System 36 emulation mode, hotkey directly into DOS for applications and switch back at a keystroke into 3X. Now *that*, say Krieger, is an intelligent workstation.

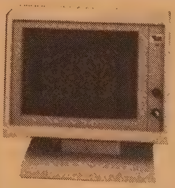
And he should know. Mike Krieger got his start in data processing in 1969 when he was still in high school. He spent one summer helping his brother convert his father's textile factory in Maryland from an IBM 1401 system to an IBM System 3, learning System 3 in the process. In the seventies he landed a job working as a programmer at JFK Airport and became involved in Common, a Systems 3 user group. When the IBM 34 was announced, he be-

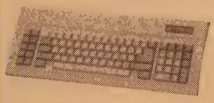
TOP OF THE LINE











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Ash Jain: "Two operating systems can exist side by side and give you the best of both at one time. We've seen a tremendous eye-opening as to what the MS-DOS environment can do in a Macintosh."

came chairman of the System 34 project group in Common, gaining a fair amount of notoriety. (He took on the CB handle of "The 34 Kid," by which he is still known on CompuServe.) His background, he says, is 80% 3X and 20% PC, making him the perfect person to help lead AST's strong push into the mini environment.

"One thing we've seen a lot of in corporate America is the use of a local System 36 and then a remote System 38, at corporate headquarters," says Krieger. "That's getting more and more common as they put out more of these baby 36s. With our Gateway products, if you have a local board attached to your local 36 and a remote board attached to your remote 38, you can select sessions off of both of those Gateways and actually hotkey from a 36 to a 38 to DOS. That is hot.

"When we spec-ed that out, we said 'This is gonna blow people away.' When I saw the engineers demonstrate it for the first time, it floored me. Because the support 36 and support 38 device drivers can co-reside in a PC, you can actually do file transfer from a System 36 to a System 38 using the DOS copy command, copying between virtual drives. That is incredible. You talk about ease of use. You can sit in DOS, type '**copy e: so-and-so g:**' and it copies off of the one virtual file into the other."

AST 5250 Gateway products allow any user in a LAN to hook up to a 34, 36 or 38 IBM through a single machine which acts as the gateway server. Unlike other gateway products, however, AST's run in the background on the main PC and can support multiple gateways on the LAN—up to 21 users on a first-come, first-serve basis. Sessions can be dedicated or shared, allowing true freedom for those who have to live off the LAN.

The AST focus on micro-to-mini connectivity may seem sudden to PC users, but according to Krieger the move was inevitable. "Basically AST looks at itself as less of a board level company these days," he says, noting that he's only been with the company since last spring. "They don't want to be remembered as the SixPak company. They made their millions there but that was a springboard for them to come up with things like the Premium 286 (AST's AT compatible micro). I think (the connectivity push) was in conjunction with the systems push. I think it all started back in April when IBM announced they were going to start putting 640K on the motherboards and start building in graphics functions in their PCs.

"AST was in the right place at the right time five years ago. SixPakPlus sold millions of boards. IBM noticed that. That did not get by them. They're not that thick and that slow.

"I think at that point the founders of AST had realized they had to make some changes in the way they do business. SixPak wasn't going to be alive forever. Of course SixPak is still selling strongly, only because there are so many PCs out there. The market for enhancement products is going to be around as long as there are MS-DOS machines in the marketplace. They'll be selling SixPaks when my kids are in college. But to become a company for the 21st century, they really have to expand into other areas, take more bold and aggressive stabs at new markets."

As for the future, Krieger says he sees even more integration of connectivity features in single level hardware products, merging the functions of Model 11, Model 12, 3276 and 3278 boards into smaller, tighter packages. Other changes he foresees are more customized integrated circuits(application specific ICs), new surface mount technology that makes for easier switching of hardware, and more soft-loaded firmware instead of ROMs: "We're going to have RAM that gets downloaded from your PC code, so that as new features are added to the mainframe, those connectivity features can be addressed properly through a diskette change rather than having someone send a ROM back or change the hardware design of the product."

Those are going to be the big changes, and beyond that, he says, it's all up to the software.

"The connection is going to be really perfected—if it hasn't already been—the perfect twinax board, the perfect coax board, and the perfect Star-LAN board. If they're not here today they're going to be here in a year. And once that's done, it's all software. Isn't that what they always said it would end up being?"

* * *

Far and away the largest connectivity market in America is the micro-to-mainframe arena. In the past, large corporations who wanted to provide their users with access to mainframe machines relied upon IBM 3270 workstations. With the onset of the micro boom, suddenly executives began bringing PCs into their offices; rather than have the double footprint of two machines taking up space, 3270 emulation boards were used, allowing the PCs to operate a 3270 workstations as well as standalone computers.

According to a 1985 market planning report from International Data Corporation, in 1984, PCs performing 3270 communications amounted to 14% of the market. That figure jumped to nearly 20% in 1985. And while terminal sales have not fallen, they haven't grown much either. "By 1990, PCs performing 3270 will represent 43%" of the total units shipping, says the IDC report.

That sort of news is music to the ears of Russell Hertzberg, AST's marketing representative in the micro-to-mainframe business group.

"The majority of my market is customers who already had mainframes, probably had networks and terminals, and *then* got PCs," he says. "In some cases people got rid of terminals on their desks and replaced them with PCs. (The advantage of that is) you get everything you had with the terminal, plus you get all the applications software and standalone processing of the PC, plus you get the ability to transfer files; sometimes you even have specific micro-to-mainframe applications to extract data from the mainframe to send into the PC, or extract data from PC applications and send it up to the mainframe. The benefits are pretty significant when you consider the terminal costs, depending on who you buy terminals from. (Terminals) are not that much less than PCs."

Despite the obvious advantages of PCs with 3270 emulation cards, Hertzberg says he doesn't see the terminal market vanishing anytime soon. And he clearly knows what he's talking about. He came to AST four months ago after working four years with IBM in systems engineering and sales. He notes there is a vast contingent of heads-down data entry workers who spend their entire work day keying information directly into mainframes. These front line data drones will no doubt stay chained to their terminals for the foreseeable future. The market that *is* open to micro-to-mainframe connectivity is the work force with more varied information demands.

"There is a wide variety of categories of corporate workgroups who have to do some general knowledge work in one form or another—spreadsheet analysis or presentation graphics—and in addition they have the requirement to access mainframe applications," says Hertzberg. "I don't think you'll find too many MIS organizations pushing those people towards terminal-only solutions. I think most mainframe companies are moving towards PCs for those people."

And once again, AST is in the right place at the right time. The company offers a variety of micro-to-mainframe communications devices: COAX 3270 emulation products, remote communications hookups (in both SNA and BSC protocols), emulation boards for Remote Job Entry 3777 Model 1 and bisync RJE workstations (2780, 3780, 3741 and 2770 machines), and Gateways which emulate IBM 3274 or 3276 Control Units (in either SNA/SDLC or BSC protocols) and allow eight or sixteen simultaneous sessions. Bundled with most products is the File Transfer System software (FTS) which was lauded by *PC Magazine* as being "the outstanding component of micro-to-mainframe products."

While all these boards have made micro-to-mainframe connectivity a much less cumbersome project, one product that is sure to gather press for its flashy speed and performance is AST's new 286 AT compatible computer, the Premium 286—especially when it's configured with AST products for mainframe connection.

"The Premium 286, when combined with the AST 3270, provides you with a very low cost product that is quite similar to IBM's 3270 PC, with the exception that it's far more compatible than the IBM 3270 PC with existing PC software," says Hertzberg. "The IBM has a display and a display adapter that has a different resolution and a different screen size, and that has resulted in some companies writing special versions of their software to function on that display and adapter. In addition the IBM, is more expensive than the 286 with 3270 PC."

Such considerations are necessary when dealing with Fortune 2000 companies. Indeed, the entire mindset of selling and supporting micro-to-mainframe products is strikingly different from that involved with board level I/O products. The installation alone is obviously far more complex. It takes very little to snap in a SixPakPlus or a RAMpage! card into a PC, whereas setting up 5250 products may involve modem settings, determining the proper type of network support, possible changes in host software, and configurations of IDs for remote terminals.

Making the sale can also a complex lengthy process by itself, notes Hertzberg.

"To go into a MIS or Fortune 2000 type of environment, or even to talk with a dealer or a distributor or a value added reseller about micro-to-mainframe, requires some familiarity with why a particular solution would be required," he says. "You have to understand control units and why they exist. You have to understand the differences between the various 3270 model terminals you're emulating, what's different about a Model 2 versus a Model 4, why would a customer want multiple 3270 sessions as opposed to one session, why would a customer not need COAX products but in fact need the RJE products. All of those questions involve some knowledge of the host world and the customer's needs in terms of the mainframe world. That takes you substantially beyond the micro and the basic needs of the desktop PC."

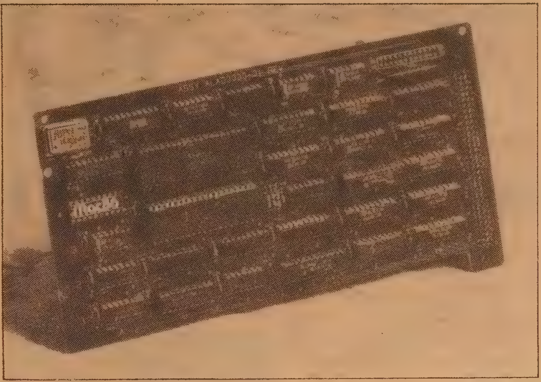
Still, the desktop PC is where AST got its start. The current push to all levels of connectivity may be propelling the company to new heights as they broaden their market, but the original board-level products will not be forgotten.

In the game of connectivity the players may be different, but the rules remain basically the same.

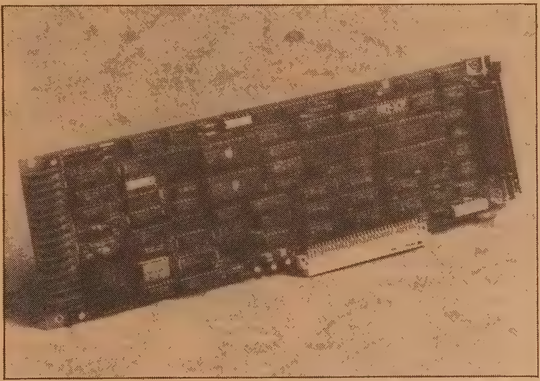
"The perfect connectivity solution to a user is one that lets you get the data you need to get at in an easy way, in a way you find painless," says Hertzberg. ☐

Boards For The Macintosh SE And II

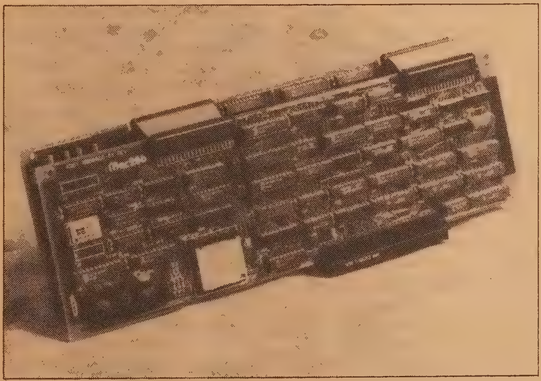
Mac86: This is an 8086-based coprocessor board that allows MS-DOS software to run on the Macintosh SE at XT speeds. Requires one expansion slot of the SE motherboard. Supports IBM Monochrome Display Adapter or IBM Color Graphics Adapter. All MS-DOS enhanced keyboard functions are possible using either the standard Macintosh SE keyboard or the Apple Extended Keyboard. Emulates Microsoft mouse under MS-DOS. Supports LaserWriter, LaserWriter Plus, or ImageWriter in emulated Epson FX-80 mode, via AppleTalk Network. Suggested retail price $599, available third quarter of 1987.


The AST Mac86

AST-ICP: This is an intelligent communications processor using the Motorola 68000 microprocessor. It includes 512K of RAM, a choice of either two or four synchronous/asynchronous serial ports, and an operating speed of 8MHz. By bringing in the extra speed, RAM and serial ports, the ICP greatly enhances the performance of a Macintosh II running Apple UNIX. In addition, two of the ports may be configured to work with AppleTalk. The ICP also makes it possible for independent software developers to create communications programs (to run either in UNIX or Mac II operating system) in the protocols common in micro-to-mainframe installations, such as SNA, Bisync and X.25. Suggested retail prices are $949 for two-connector and $999 for four-connector, available third quarter of 1987.


The AST-ICP

Mac286: This is a two-board, self-contained 80286 computer, complete with a megabyte of RAM, a direct-memory-access controller, a socket for an optional 80287 math coprocessor and a controller for a 5.25 inch disk drive. Supports IBM Monochrome Display Adapter, IBM Color Graphics Adapter, or Hercules Monochrome Graphics Adapter. The AT enhanced keyboard can be accessed by the Macintosh II keyboard or Apple's Enhanced Keyboard. A pull-down menu allows mouse selection of any IBM keyboard function, and all mouse-driven MS-DOS applications are supported. MS-DOS applications can print directly to LaserWriter, LaserWriter Plus, or ImageWriter in emulated Epson FX-80 mode. Suggested retail price $1499, available third quarter of 1987.


The AST Mac286

AST-Pak: This is a multifunction board for the SE which incorporates the AST FlexBus, allowing the user to plug in a variety of option boards, and comes with one megabyte of memory. Suggested retail price $499, available third quarter of 1987.

AST-Pak SSF Option Board: This is an extension of the AST-Pak capabilities; it contains two serial ports and circuitry for connecting an optional 5.25 inch external disk drive. When the board is used with Apple's *PassPort* file transfer software, users may access MS-DOS data files. Suggested retail price $249, available third quarter of 1987.

Ashton-Tate Alumni Prepare Revolutionary Software, Seek Third-Party Developers

Migent's Quest For The Ultimate Database

By Stephan Wickham

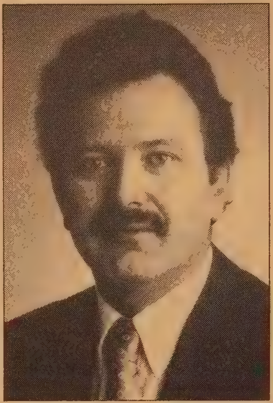
A question frequently heard around corporate offices these days is "How do I get the data from my different programs to work together?" In Incline Village, Nevada, a team of Ashton-Tate veterans is working on a new database that effectively eliminates this problem. With this product, very diverse applications will be able to share data in a manner transparent to the user.

Migent Inc. was founded by Carl Gritzmaker, A-T's former head of sales, and it offers a diverse line of products from software to modems. The impetus for the ambitious database project, code-named *Emerald Bay*, was provided by Wayne Ratliff's departure from Ashton-Tate in early 1986 and his subsequent arrival at Migent.

Ratliff could legitimately be called a software superstar, being the sole author of *dBASE II*. (Interestingly, the name *dBASE II* was coined by Ashton-Tate to suggest an improvement over the nonexistent *dBASE I*. Ratliff himself, who sold A-T exclusive distribution rights to the product in 1981, called his creation *Vulcan*, after Star Trek's Mr. Spock, famed for his powers of total recall.) His current project is a new process of database management designed to bring together dissimilar data for information analysis requirements.

In its present form, the software consists of a memory resident database engine, which serves as the database management unit and record-and-file-locking mechanism. It includes a number of interface modules which reside on disk and are called in as needed to allow the user to import and export data transparently from dissimilar applications (e.g. *Lotus 1-2-3*, *dBASE III*, etc.).

The modules that provide the interface between the *Emerald Bay* database engine and third-party applications are called "surfaces." Built into the engine and the application, they provide a seamless data link. Various applications can be interconnected to the database engine, resulting in one compatible database management system. Surfaces can take on the appearance of the programs they're attached to—for instance, a *Lotus 1-2-3* surface could be designed to correspond to the appearance and structure of *1-2-3*'s characteristic menu system.


Wayne Ratliff, author of *dBASE II*, is now at work on a revolutionary database manager for Migent.

Another interesting aspect of the *Emerald Bay* engine is that it allows applications to access data in other applications directly—you could be doing a range statement in *1-2-3* and access data outside the spreadsheet as if it were part of the spreadsheet.

Emerald Bay provides a common data pathway between applications; data organized in this manner becomes a "data pool," rather than a collection of dissimilar data. Currently, information stored in word processors, spreadsheets, accounting programs or other applications is normally specific to the application in which it originates.

The *Emerald Bay* database engine will contain a built-in data dictionary that operates at the attribute level (field). It will keep track of such matters as how large the field is, how wide, its protection level, its owner, an attribute note field, a permission field, the data range and type; it will also provide a record of attached indexes and a note field for them. The note fields are designed to be up to two gigabytes long, and the data dictionary will keep track of the field attribute's long and short title. Field types currently include character, floating point number, binary (for graphics), big binary, text, date and time. Additionally, both short integer and long integer fields are present but hidden, and a packed decimal field type may be included.

While the relational model defined by E.B. Cobb in the early '70s (and now considered the academic basis for relational databases) finds its closest present-day approximation on mainframe systems, *Emerald Bay* will be a far more mature implementation of this standard than currently exists in the micro world. A database is a collection of relations; one *Emerald Bay* database is equivalent to a collection of *dBASE III* databases. Each *Emerald Bay* database can have up to 250 relations (each relation equivalent to one *dBASE III* database) and 32,000 field attributes per relation (of which 4,000 can be used for any tuple).

Migent plans to release the first version of *Emerald Bay* sometime this year, with the beta version slated for the first quarter. This will be a network version of the software, which will run on Novell, 3Com, and other systems using IBM's Net-BIOS. According to Ratliff, the design of this version allows for seven databases at a time to be open at a local site, with seven more databases on the server.

Single-user versions are planned for 8088-, 80286- and 80386-based machines (the more powerful processor is desirable, but users of the slower 8088 machines should not notice a significant loss of speed). Later versions will also support the Windows environment, providing memory management, input-device support, display adapter support, communication support, screen handling and program switching.

Former Ashton-Tate programmer Jordan Brown, who also helped develop *dBASE III*, is currently at work porting the *Emerald Bay* code to UNIX System V, making the program available to the workstation and minicomputer environment and opening the door for UNIX and XENIX versions. He's also working on the system's password security protection—a key concern where files are shared.

Using the interface surfaces planned for the initial release, users can examine and change data and generate reports by using IBM's Structured Query Language(SQL) or Query-By-Example. Another A-T veteran, Garry Lang, is working on these interfaces. SQL will act as a control language for the whole application.

Knowing that the ultimate success of *Emerald Bay* depends on the support of third-party developers and publishers, its creators are keeping its architecture open. Its published specifications will be as comprehensive as those for PC-DOS. Ease of use will be the main criterion for the surfaces interfaces, which will have data hooks more powerful than those *Lotus* included in Release 2 of *1-2-3*. Migent will also publish a set of findings for tie-ins to various languages, including C, COBOL, Turbo Pascal and BASIC.

Further, Migent encourages all interested large corporations, product development groups, publishing houses and systems consultants working on networks to apply for a beta copy of the soon-to-be-released network version of *Emerald Bay*. Inquiries (by mail only) should be sent to Migent Corporation, 865 Tahoe Blvd., P.O. Box 6062, Incline Village, NV 89450.

Work on the interface surfaces will emphasize QBE, SQL, the report writer, the screen painter, the importer-exporter module, *dBASE III* and *Lotus 1-2-3*. Query optimization is a key component of the product, and special attention is being given to performance—in the network version efficiency is greatly enhanced by sending only the exact information needed instead of a whole record or group of records. *Emerald Bay* has entirely dispensed with the *dBASE III* concept of physical files.

The *Emerald Bay* project offers a major advance in interconnecting data and may help bring about the decline of single-purpose applications. It shows considerable promise of eliminating the babel of incompatible information with which the business world must currently contend.

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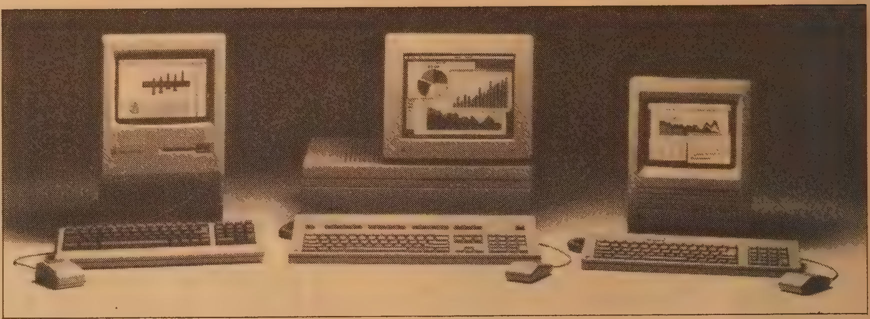
The New Macs— Power And Flexibility

By Robert Beauchamp

With the introduction this spring of the Macintosh II and the Macintosh SE, Apple Computer broadens its range of computers, with the purpose of strengthening and expanding its position in the business, government and higher education markets. The new computers are designed to offer the expandibility, power and accessibility these markets demand.

Apple now offers what it calls a family of personal computers. These include the top-of-the-line, high performance, open architecture Macintosh II, the expandable Macintosh SE and the entry level Macintosh Plus and Macintosh 512KE.



The Macintosh family now consists of (l-r) the entry-level Macintosh Plus, the open-architecture Macintosh II, and the expandable Macintosh SE. The Macintosh 512KE, also an entry-level machine, is not shown.

THE MACINTOSH II

With the Macintosh II, Apple departs from the now classic footprint of the Mac. The II's low, box-like shape and detached monitor, combined with a longer multi-function keyboard, give it the look of a more conventional PC. The new modular design and open architecture allow for color displays and the ability to incorporate add-in cards from Apple and third party companies.

Apple has recognized the need to provide data file interchange with other operating sytems. It is therefore providing the Mac II with its own version of the UNIX system, which is widely used by universities, the government and technical professionals. It has also introduced *InterFile*, file transfer software that gives the Mac II MS-DOS data file compatibility.

Compatibility is also the reason users may choose between two Apple keyboards. The Apple Keyboard provides a typewriter style layout, a numeric keypad and curser keys. The Apple Extended Keyboard also includes function keys and special purpose keys for using alternative operating systems such as MS-DOS.

Apple has included many features into the Mac II that are designed for advanced applications in business, desktop publishing, higher education and engineering environments. For those desiring greater speed, the Mac II is equipped, along with its 32-bit, Motorola 68020 microprocessor, with a floating point arithmetic chip, the 68881. This chip can perform mathmatical operations up to 200 times faster than the 68020. Together the chips let the Mac II process at a speed of two million instructions per second. The SCSI (Small Computer Systems Interface) port allows for transfer rates greater than one megabyte per second. Overall the Mac II operates most existing Macintosh applications up to four times faster than the Macintosh Plus.

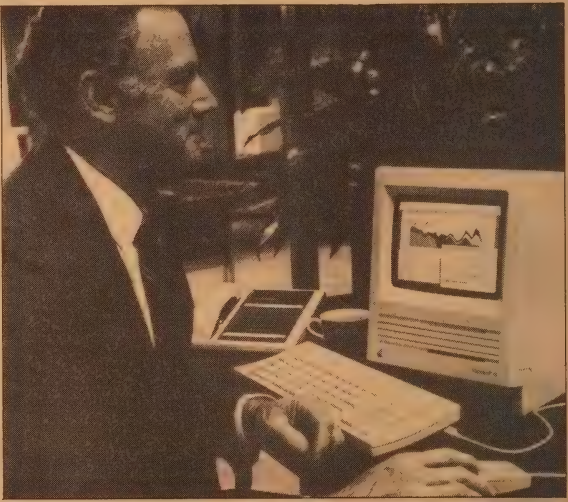
To permit the fast transfer of large quantities of data between the add-on cards and the logic board, the Mac II includes six slots that use the high-performance NuBus protocols. NuBus features fair arbitration and geographical addressing which lets the add-on cards "identify" themselves. Therefore, there is no need to set DIP switches to configure a system. The six slots let the Macintosh II operate a wide range of applications and expand along with users' needs.

New 12- and 13-inch high resolution monitors are designed to meet word processing, spreadsheet and advanced graphics needs. The screens are capable of displaying the full width and over half the length of the page. The display units feature 640×480 pixel resolution and utilize an analog input format. With the graphics card and expansion kit the 12-inch monochrome monitor can display millions of gray values; the 13-inch color monitor can display millions of gray or color values.

The Mac II also provides 1 MB of RAM. It can internally accommodate, simultaneously, up to two 800 kilobyte floppy disk drives and one 20, 40, or 80 MB hard disk.

THE MACINTOSH SE

Apple considers the Macintosh SE (System Expansion) its mainstream system for most business and higher education uses. Unlike the Mac II, the SE keeps the traditional Mac shape. Its performance and flexibility, however, are greatly increased.



The Macintosh SE is expected to be the most heavily-used business Mac.

The goal of the SE is the same as that of the Mac II. It is designed to provide a flexibility and power previously unseen in the Macintosh. The internal machine design is completely new. It incorporates two built-in disk drives and an expansion slot called the Macintosh SE-bus. Expansion options available from third party companies include MS-DOS compatibility cards, communication cards, external video cards and performance acceleration cards.

Users may also expand the memory capabilities of the SE by up to 4 MB with a new 2 MB RAM expansion kit. They may also add external 40 or 80 MB hard disks to a system which already gives the option of either two 800 KB floppy disk drives or one 800 floppy disk drive and one 20 MB SCSI internal hard disk drive.

The SE offers the same keyboard option as the Mac II. Both units also offer an optional 40 MB SCSI tape backup unit which provides both file and image backup on preformatted, one-quarter-inch tape cartridges.

InterFile is also an option for the

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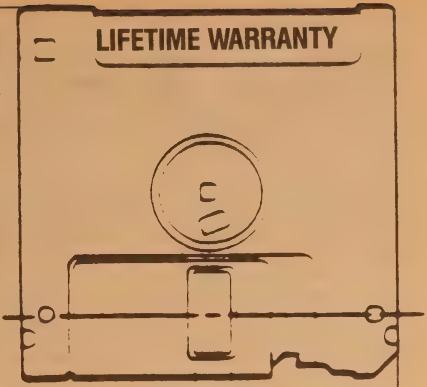

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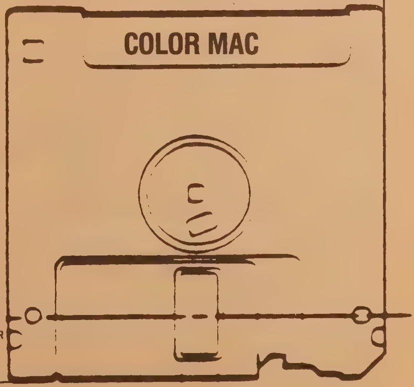

SE. Along with the software, a 5.25-inch MS-DOS floppy disk drive and drive controller cards are available. This gives users abilities such as reading in a *Lotus 1-2-3* data file so it can be used in a spreadsheet program such as Microsoft *Excel.* Users who choose a coprocessor card from a third party can run *dBASE III* or *Lotus 1-2-3* in a window on the Macintosh screen.

Apple is also taking aim at the international market. Both the Mac II and the SE will be available in 15 localized versions in 10 different languages, including Japanese, Flemish and Dutch. The international models also feature a universal power supply that permits operation with all common voltage.

OPTIONS AND COSTS

As with any business decision, foreign or domestic, the potential customer will have to decide about the cost of a new Macintosh system.

A Macintosh II with 1MB memory, 40 MB hard drive, color monitor, video card and Apple Keyboard will retail at just under $7000. The basic Mac II with 1MB memory, 800 KB floppy disk drive and Apple Keyboard is $3898. In comparison, the entry level Macintosh 512K Enhanced starts out at $1699.

If Apple's predictions are correct, the most popular models will be the mid-priced SE and Mac Plus. The Plus begins at $2199. The SE price ranges from $2898 for 1MB memory, two 800 KB floppy disk drives and Apple Keyboard to $3698 for 1MB memory, one 800 KB floppy drive, 20 MB internal SCSI hard disk drive and Apple Keyboard.

These prices don't generally include the vast array of add-ons and peripherals that Apple is offering. An Apple External hard disk 80 SC costs $3199. An Apple PC 5.25-inch Drive for MS-DOS capabilities costs $399. Third party companies will also be offering thier own smorgasbord of products to increase Macintosh capabilities (and price).

The Macintosh II won't be available until May. Some of its features, such as the Apple version of UNIX, won't be available until summer. *InterFile* is also slated for summer release. The rest, however, including the SE, are available now.

Apple is hoping that the Mac's new power and expandability, when coupled with its vision of computers that are easy to use and take little time to learn, will be an irresistible combination to businesses, universities and government agencies. Apple already boasts that nearly two-thirds of all Macintosh computers sold today are sold to the business marketplace. They are hoping to expand this foothold and add to the impressive total of one million Macintosh computers sold to date. ☐

Third Party Products

Apple Computer has worked closely with third party companies to insure a vast range of high quality software and add-ons for the new Macintosh II and Macintosh SE. Here is a listing of over 30 independent companies that are offering new or enhanced products for the recently introduced Macintoshes.

Abvent (213/659-5157): *SpaceEdit*, a 2- and 3-Dimensional CAD software for engineers and architects.

Adobe Systems Incorporated (415/ 852-0271): *Adobe Illustrator,* an art production graphics package for producing high quality line art and illustrations.

Aldus Corporation (206/655-2200): *PageMaker 2.0*, desktop publishing software which will support both the Macintosh II and the Macintosh SE.

Ashton-Tate (213/538-7321): *dBASE Mac,* an advanced relational database management system, which will support the Macintosh II and the Macintosh SE.

AST Research (714/863-1333): Mac286, an 80286-based microcomputer that allows the use of MS-DOS applications on the Macintosh II; AST-ICP, a communications processor that increases system performance, speed and efficiency; AST-RM4, a memory expansion board that provides up to four additional megabytes of memory; AST-Pak, a memory expansion board which allows for the addition of Option Boards for system customization; Mac 86, an 8086-based coprocessor board that enables users to run MS-DOS application software on the Macintosh SE.

Authorware Inc. (612/941-5752): *Course Of Action*, a courseware design and authoring system.

Avatar Technologies Inc. (617/435-6872): MacMainFrame SE; A hardware/software communications product that connects the Macintosh SE computer to IBM mainframes.

Blyth Software Inc. (415/571-0222): *Omnis 3 Plus*, an updated version of the multi-user, programmable database.

BrainPower Inc. (818/884-6911): *StatView II,* a new version of the statistical analysis package *StatView 512+*, designed to operate on the Macintosh II.

Cricket Software Inc. (800/345-8112): *Cricket Graph* and *Cricket Draw,* enhanced versions of Cricket's color graphics software.

Dayna Communications Inc. (801 / 531-0600): DaynaFile, a 5-1/4" disk drive that allows the Macintosh to access IBM compatible files as though they were originally created on a Macintosh computer disk. Dayna also offers an enhanced coprocessor that allows IBM PC software applications to run on the Macintosh 512K or Macintosh Plus.

E-Machines (503/692-6656): The Big Picture, a 17" display, usable by the entire line of Macintoshes, that allows the viewing of an entire page or form.

Forethought Inc. (408/737-7070): *PowerPoint,* software that creates and manages business presentations.

General Computer (617/492-5500): HyperCharger 020, processor enhancement board that allows the Macintosh SE to run as fast as the Macintosh II; *HyperNet,* a file server software program that lets Macintosh users linked by AppleTalk share hard disk storage capacity, files and application programs; HyperDrive FX/40, an external 40-megabyte SCSI hard disk for Macintosh Plus, Macintosh SE and Macintosh II.

Great Plains Software (701/281-0550): *Great Plains Accounting Series*, a new version which uses the Macintosh interface while providing advanced accounting capabilities.

Kinetics, Inc. (415/947-0998) : EtherPort SE, an internal Ethernet controller board for the Macintosh SE.

Layered Inc. (617/423-9041): *Insight Accounting Series*, a new version which takes advantage of the larger screen and color capabilities of the Macintosh II.

Letraset (201/864-5600): *Ready, Set, Go! 3*, a desktop publishing program for the Macintosh SE and Macintosh II.

Levco (619/457-2011): Prodigy SE, a performance enhancement board that tranforms the Macintosh SE into a minicomputer-class workstation.

Lightspeed, Inc. (617/338-2173): Lightspeed offers a color desktop page layout system for designers, advertising agents and publications to be used on the Macintosh II.

Living Videotext (415/964-6300); *More 1.1c*, an integrated idea processor/presenter software package that has been upgraded from the 1.1 version to take advantage of the color capabilities of the Macintosh II.

Lotus Development (617/577-8500): *Lotus Galaxy* delivers six programmable business modules for the Macintosh II and Macintosh SE that meet daily business demands.

MicroGraphic Images Corp. (818/407-0571): MegaScreen SE and MegaScreen SE*M, expansion cards that give large-screen high-resolution display capabilities to the Macintosh SE.

Microsoft (206/882-8080): With the exception of a few minor maintenance releases for the Macintosh II, all Microsoft applications available for Apple Macintosh systems are fully compatible with the Macintosh SE and Macintosh II.

National Instruments (512/250-9119): *LabVIEW,* a software sytem for developing scientific applications involving instrument control, data acquisition, display, analysis and management along with report generation.

National Semiconductor (408/721-5000): National Semiconductor will be offering a 16-megabyte memory expansion module and a video enhancement card for the Macintosh II.

Peak Systems (512/328-0747): Orion, an upgrade board for the Macintosh SE that processes twice as much data as the basic Macintosh SE.

Personal Bibliographic Software, Inc. (313/ 996-1580): *The Professional Bibliographic System (PBS)*, a database and text management system that manages bibliographic information, references and abstracts; *Biblio-Links,* companion programs to *PBS*. Both *PBS* and *Biblio-Links* now take advantage of the increased speed and larger screen size of the Macintosh II and Macintosh SE.

Radius, Inc. (408/732-1010): Radius Performance Accelerator increases the speed of the standalone Macintosh SE; Radius Full Page Display is a 15-inch large screen display that, coupled with the Accelerator, transforms the Macintosh SE into a desktop publishing system.

Sigma Designs, Inc. (415/770-0100): LaserView Display System, two new configurations of the high resolution display system designed for the Macintosh SE and the Macintosh II.

SuperMac Technology (415/964-8884): The color Spectrum and black and white Grafix high-resolution graphics controller boards are for the Macintosh II. SuperView is a black and white graphics board and monitor for the Macintosh SE.

Vamp, Inc. (213/466-5533): *McCAD Electronic Design Systems, McCAD PCB Design, McCAD Schematics* are new versions of *McCAD* software that take advantage of the increased speed and capabilities of the Macintosh SE and Macintosh II. They also take advantage of the color capabilities of the Macintosh II.

Visual Information (818/918-8834): *Design Dimensions* and *Solid Dimensions* are CAD color software for the Macintosh SE and Macintosh II.

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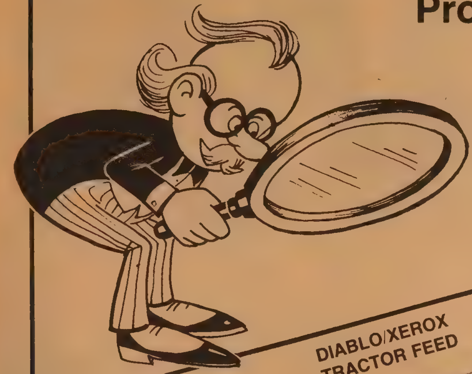

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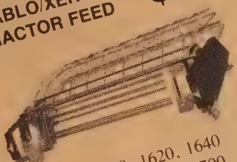

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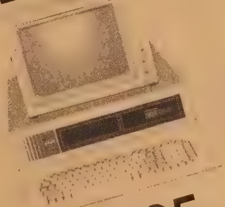

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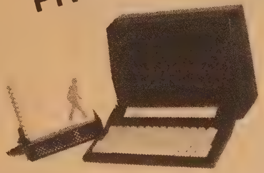

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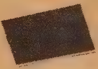

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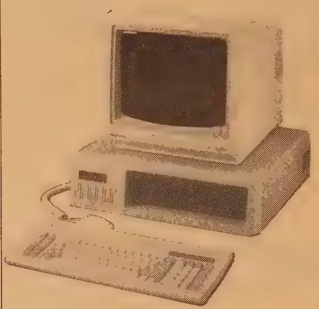

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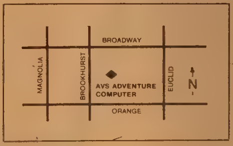

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MAC @ WORK

VOL 1. NO. 1

SPRING 1987

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WriteNow: The Next Step

By Mary Eisenhart

WriteNow bills itself as "the next step in word processing." It claims to "combine the power you would expect from a dedicated word processing system with the ease of operation that you're used to with *MacWrite*."

WriteNow incorporates many useful features without sacrificing the ease of use that distinguishes the Macintosh.

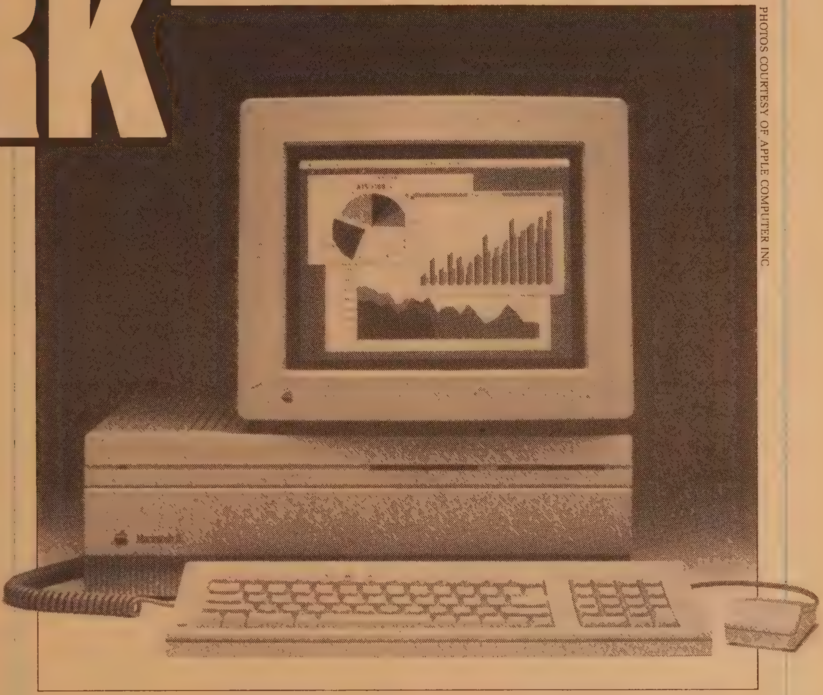
This is a tall order, but *WriteNow* manages to live up to it fairly well.

Many of us are partial to *MacWrite*, particularly those of us who went directly from typewriters to Macs, with no intermediate stops at, say, *WordStar*. *MacWrite* lets you be productive in minutes and reduces those frantic searches of the manual to practically nothing; for many of us, it's the only word processor we'll ever need.

However, it has some limitations. It won't, for example, support footnotes. Its formatting options leave a bit to be desired in this era of increased expectations of document quality. It doesn't let you use graphics in your word-processed documents. And it requires a considerable intuitive leap to visualize how the document on your screen is going to look in hard copy.

WriteNow addresses these problems and comes up with some effective solutions. While remaining,

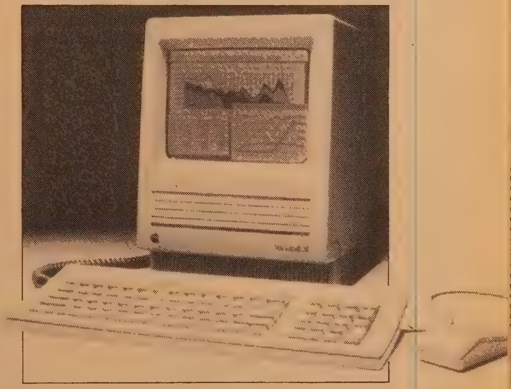
continued on page 63



PHOTOS COURTESY OF APPLE COMPUTER INC

Macintosh Enters A New Era

The arrival of the expandable **Macintosh SE** and the open-architecture **Macintosh II** opens new vistas. Now the user can customize the Mac to fit a particular work situation, using various add-on cards, hard disk and tape units. The SE, in a new version of the familir Macintosh box, offers limited expandability, with a single slot for a dealer-installable card and two built-in disk drives; the Mac II offers a fast 68020-based processor and a vast number of expansion possibilities. See story on page 54.



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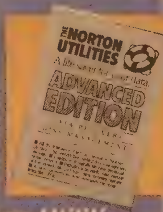

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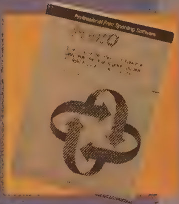

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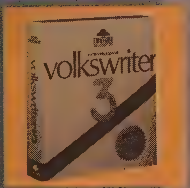

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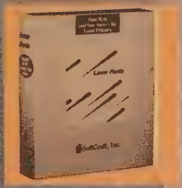

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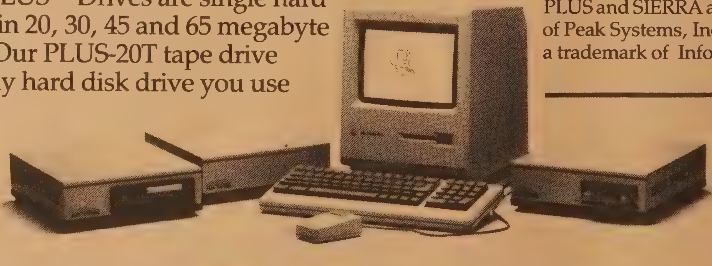

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WriteNow *continued from page 59*

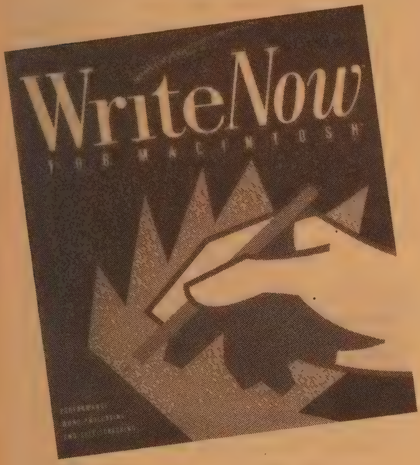
in most respects, as easy to use as *MacWrite*, retaining some of *MacWrite's* familiar features (most of the most commonly used cloverleaf-key commands, such as I for italics, remain in place), and refraining from using un-Mac-ish concepts, this package offers considerably more flexibility and power. For purposes of this review, we'll concentrate on some of the features that distinguish it from the original Macintosh word processor.

RULERS

One of the key differences between *WriteNow* and *MacWrite* is that the former is designed to let you format each paragraph separately, which makes it much easier to handle situations where, for example, tables, outlines, or numerical figures must be included in text files.

Rulers in *WriteNow* will not be unfamiliar to the *MacWrite* user; however, they incorporate some new and useful features.

First of all, each paragraph (that is, each block of text set off by a carriage return) has its own ruler; all text, though, will follow the format of the first paragraph in your document unless you tell it otherwise. Like *MacWrite*, *WriteNow* allows you to center, left-justify, right-justify or right-and-left-justify your text.



Tabs and margins are also similar to those in *MacWrite*, but *WriteNow* has added a right tab option, which, with its ability to keep columns of numbers correctly aligned, should be a godsend for those who have to incorporate such figures into their documents.

WriteNow handles the matter of line spacing somewhat differently from *MacWrite*. Whereas the older package essentially gives you the options of single-spaced, one-and-a-half-spaced, or double-spaced text, *WriteNow* gives greater flexibility by allowing you to increase and decrease spacing between lines by single-point increments. Simply click the mouse with the cursor on the increase-spacing or decrease-spacing box, and your text will reformat itself while the center box tells you exactly how many points you have between lines (*WriteNow* will not allow you to decrease spacing to the point where lines overwrite each other). This takes some getting used to, but provides greatly enhanced control over the appearance of your document.

WYSIWYG COMES TO WORD PROCESSORS

WriteNow represents a great improvement over *MacWrite* in allowing an accurate preview of the way your document's going to look. It displays your pages precisely as your printer will produce them, with headers and footers already in place and page breaks clearly shown.

The program lets you take pictures created in *MacPaint* and other graphics applications and paste them into your document. *WriteNow* will treat the graphic as a separate paragraph, but will allow you to position text in a paragraph surrounding it. It will not, however, wrap text around the picture.

WriteNow will also let you create extra margins on either the right or left side, for binding or other specialized purposes. Perhaps its most distinctive feature among the current crop of Mac word processors, though, is that it lets you format your text in up to four columns, using nothing more difficult than simple Page Setup commands from the menu.

WriteNow offers you the option of viewing all the formatting characters embedded in your text. By selecting the Show Space option from the View menu, you can have your text displayed with tabs, carriage returns, and the like. This can be useful, for instance, in situations where those invisible ASCII characters in a file you've imported from another package are causing mysterious formatting difficulties.

OTHER FEATURES

WriteNow includes a 50,000-word built-in spelling checker, which is quite easy to use and gives you the option of adding words of your own. Other pluses—it's not copy protected, installs very nicely on a hard disk, supports lots of fonts in sizes ranging from 4-127 points, and offers a forward, backward, and wild card find and replace function. It also performs operations like saving and scrolling at speeds to make *MacWrite* blush.

One feature that will be a godsend to those who need to conserve disk space is the SaveCondensed option, which will compress the file into the smallest possible size.

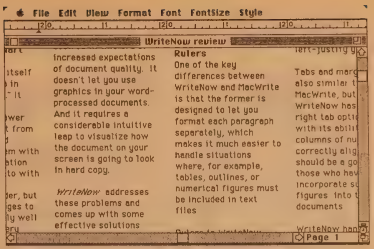
NOT ALL GOOD NEWS

Good as this package is, it has a few less-than-ideal elements.

Perhaps the most annoying, at least for those who have to work on documents generated by a variety of word processing programs, is the awkward way in which file conversion is handled. *WriteNow* does not allow you, for instance, to save a document as a text-only file; in order to accomplish this, you must exit *WriteNow* and open up its ancillary application Translator, which will convert *MacWrite*, *Word*, or ASCII files to *WriteNow* and vice versa. If this is the only word processor you're ever planning on using, this won't be a problem, but it's a serious inconvenience otherwise.

Also, while *WriteNow* gives you the option of background printing in the background, this feature isn't as useful as it could be; I found that the background printing stopped the minute I closed the document, and when I typed additional text while the original document was printing, response—even with a SCSI hard disk—was sluggish in the extreme.

These, however, are fairly minor complaints. On the whole, *WriteNow* offers increased control over your documents and incorporates many useful features while not sacrificing the ease of use that distinguished the Macintosh. All in all it's a very good package and a portent of better things to come. If you've been chafing at the limits imposed by *MacWrite*, give *WriteNow* a try. (*WriteNow* is published by T/Maker Company, 1973 Landings Dr., Mountain View, CA 94043, 415/962-0195. Suggested retail $175. The program works on all Macs, including 128K models.) ☐



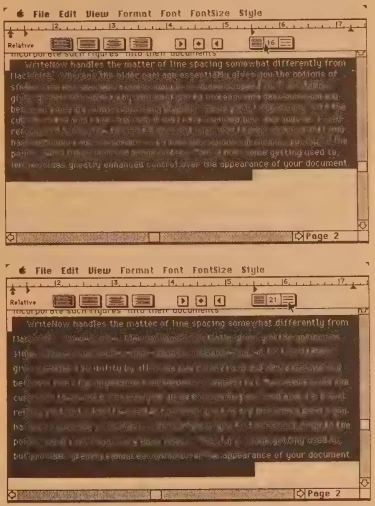
increased expectations of document quality. It doesn't let you use graphics in your word-processed documents. And it requires a considerable intuitive leap to visualize how the document on your screen is going to look in hard copy.

WriteNow addresses these problems and comes up with some effective solutions

Rulers

One of the key differences between WriteNow and MacWrite is that the former is designed to let you format each paragraph separately, which makes it much easier to handle situations where, for example, tables, outlines, or numerical figures must be included in text files

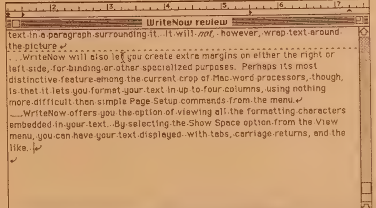
***WriteNow* makes it easy to format text in up to four columns.**



WriteNow handles the matter of line spacing somewhat differently from

but provides greatly enhanced control over the appearance of your document.

***WriteNow* offers flexible line spacing: shown here, the same paragraph at 16 point and 21 point spacing.**



text·in·a·paragraph·surrounding·it.··It·will·*not*,··however,·wrap·text·around·the·picture↵

...WriteNow will also let you create extra margins on either the right or left·side,·for·binding·or·other·specialized purposes. Perhaps its most distinctive·feature·among·the·current·crop of·Mac·word·processors,·though, is·that·it·lets·you·format·your·text·in·up·to·four·columns,·using nothing more·difficult·than·simple Page·Setup·commands·from·the menu.↵

___WriteNow·offers·you·the·option·of·viewing·all·the formatting·characters embedded·in·your·text.··By·selecting·the·Show Space option·from the·View menu,·you·can·have·your·text·displayed··with·tabs,·carriage·returns, and·the like.·↵

↵

By selecting Show Space from the View Menu, you can see and edit hidden formatting commands in your text.

Doug Clapp: Toward A Transparent Word Processor

By Mary Eisenhart

Columnist Doug Clapp has been working for some time now on *Doug Clapp's Word Tools,* slated for April release by Aegis Development in versions for Macintosh, Amiga, and Atari ST. *Word Tools* includes several helpful utilities for writers, notably a style and punctuation checker which can be completely customized to fit the stylistic needs and preferences of a particular environment."I would hate to be preached at by a program," says Clapp.

"What I really hope *Word Tools* will do is draw people's attention to the words that they write. Good writing is clear, simple and direct—like Strunk and White say, omit needless words. The majority of bad writing is weak, wobbling, preposition-strewn, wimpy, foggy, cluttered—and the idea is that you should use short words, short sentences, and short paragraphs. That will make your writing clear, simple and direct—and easy to write, too, because it'll be a lot shorter."

> **A good word processor should not make you aware that you're using a word processor. It should just sort of stay out of your way.**

Inasmuch as Clapp is a man of strong opinions in matters of writing and computers, we decided to ask him about recent developments in the Mac world, particularly as they relate to word processing.

What's your idea of a good word processor?
A good word processor should not make you aware that you're using a word processor. You should just be writing. It's like if you're watching a really good movie, you're not really aware that you're watching a movie because you're into the movie. A good word processor should just sort of stay out of your way. The trick is how you get it to stay out of your way and still have easy access to all these snazzy features that you're going to want sometimes.

So how does the current crop stack up?
The problem with word processors in particular, and all programs on the Macintosh, is that programs are so feature-laden they're weighing down the interface. It's almost as if the Macintosh interface wasn't conceived and designed to easily incorporate all the features that people are trying to stick in it.

The problem isn't really that people don't have enough features; it's really kind of one-upmanship on the part of the vendor, and it's the ingrained attitude of the computer press that says that features are good, and more features are better. So a developer couldn't really say, OK, we're going to do a really nice bare-bones word processor and sell it. You couldn't do it. The people who have come closest to that are probably the *WriteNow* people, and even they felt compelled to put in a speller and a whole bunch of other stuff.

There's always the next program with more features. *Word Perfect* is going to have macros, for God's sake. And it's not just going to have a dictionary, it's going to have a thesaurus. And then somebody'll come along, and they won't have just a thesaurus and a dictionary, they'll have *Bartlett's Quotations.*

It's like you make a pile of goo of features, and there's all these features that people have already put in, and you slop some more on top of them, and the pile of goo just gets bigger and bigger—and pretty soon the whole thing just sinks under the weight of the features.

I have a real philosophic disagreement with the whole idea that more features are better. I'm one of about two people in the country who really think that Steve Jobs was probably right in the first place—that the Macintosh should've been closed, that there shouldn't be slots. It should've been a toaster.

To sell anything in this market you have to convince the press that it's good, or the press will kill you. But what the press wants is not necessarily what the mass market should have. So you can either make a product for the press, or make a product that will really serve the needs of people.

The Mac II is the embodiment of giving the computer press and the stock market what it wants—zillions of keys on the keyboard, and lots of slots, color and zillions of pixels. But even though a lot of it is software-configurable and it's not going to be as onerous to users as the IBM PC was, it's still a long way from a toaster. And the Macintosh, just a simple old 512K Macintosh, is still a really intimidating machine to a lot of people.

Word 3.0 is really a noble attempt to look like *MacWrite,* but I can't decide in my own mind whether it's a brilliant move that should be applauded or an admission of a flawed interface. I do think Microsoft has all these brilliant designers, but they really don't seem to spend a lot of time asking people what they really want.

What kinds of features would you like to see?
I think the next real generation of word processors will come when a program starts watching what kinds of actions we do and sort of molds itself to them. There's a lot of programs that watch what you're doing—macro programs that record your keystrokes. *MicroPhone,* for instance, is a great program. But word processors should do the same thing, kind of optimize on the fly for things you do most often.

The way it is now, you have to guess how the user is going to use your program and then optimize, if you can, so certain things are really fast. But a program could watch you and make little scripts of what you did, and modem them back to Microsoft or wherever, and they could look at them and they could make these really spiffy profiles of how people really use their program.

When the Macintosh first came out, people called it a toy. How successful do you think Apple's been at re-positioning it as a business machine for power users?
I think they've been masterful at it. Under Sculley's aegis, Apple has been giving at least the press, if not the users, exactly what they wanted, with a vengeance. If I were the people that ran Sun and Apollo computers, I'd just go jump off a cliff.

I think it was a confluence of amazingly coincidental fortuitousness to get the caliber of people together that designed the original machine. I think Bruce Horn is a genius, and Bill Atkinson, obviously, and Andy Hertzfeld is a really good hacker, really good at making things run. It's amazing that these people got together and had the license to do this thing.

I think it's a testimony to how good the original design was that you could play off it so well.

When you consider that IBM, the last time I looked, had over 397,000 employees, and Apple maybe 10,000—given that, and given that we traditionally expect computer manufacturers to basically make boxes, and somebody else writes the programs, and somebody else writes the operating system—considering all that, Apple is delivering much more of a product than IBM.

What are the needs of the business user, as contrasted to the hobbyist user?
I think hobbyists like to have the innards on the outside and the business users like to have the innards on the inside. Business users want to do things really fast, with a minimum of muss and fuss and effort. That, in theory, is what adding features does for you, but of course it never really does unless it's extremely elegantly done.

What kind of applications would you like to see?
The real challenge for developers is to come out with really different ideas, that'll make things simple that people couldn't do before. That sounds really trite, but as the power of computers rises, the domain of do-able things gets bigger. As the speed of computer power increases, all of a sudden all these things that are just stupid, like talking dogs, get to be real applications.

The Mac II will make desktop engineering into a real application. As it is, you've got to really *like* 3D graphics a lot to wait a half an hour for something to rotate. The challenge for developers is what's going to appear on the horizon, what you can do with that little bit of speed that you couldn't do before.

Really good programs will do things in every little second when you're not doing anything. Right now, most of the time, programs aren't doing anything when you're not. In reality, personal computers don't get used much, and aren't doing much, because humans are really slow. You should use all that processing power all the time, if you can—looking in the background for MCI mail or whatever. These computers are expensive—they ought to work really hard, right? ☐

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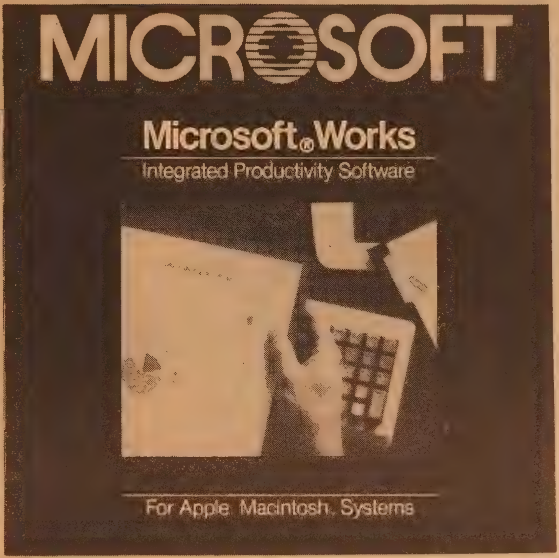

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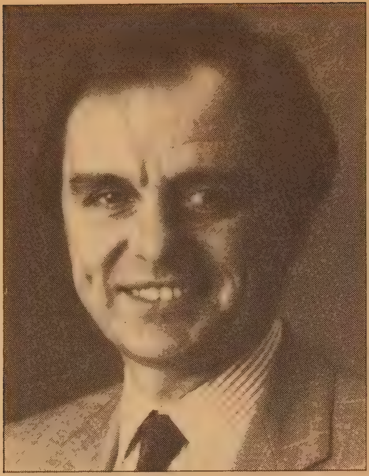

Beyond Desktop Publishing

Apple's Gassee On Mac, Present and Future

"A good user interface," says Jean-Louis Gassee, Apple's vice president of product development, "is one where you have to know less about the object so that you can concentrate on the subject matter and get under way." The Macintosh has a good user interface, and an increasing number of corporate sites are finding that it translates into power and efficiency.

Desktop publishing, says Gassee, has proved to be what he calls "the Trojan niche." He relates with glee the tale of a large midwestern bank, where committee meetings have been going on for over a year to debate the purchase of a single Macintosh to do desktop publishing. The reason, he says, is that the bank's officials are worried about a phenomenon they're witnessing elsewhere —the Mac brought in to create spiffy-looking memos and reports turns out to be good for other things too; before long erstwhile IBM users in the office are discovering that power and ease of use don't have to be mutually exclusive, and they soon begin clamoring for Macs of their own.

> **If computer manufacturers think that all the possible usages for the personal computer can be encompassed by the designers, they're very wrong.**

According to a recent *InfoWorld* report, the Macintosh is currently the best-selling individual computer in the United States. Apple fully expects the Macintosh SE and II, with their increased power, flexibility, and connectivity options, to further the inroads into the business marketplace made by the Macintosh Plus. The Plus was the first Mac with enough power to attract the corporate user; as it becomes increasingly easy to exchange files created in other operating systems and link a variety of incompatible machines together, another obstacle to the Mac's acceptance by Corporate America—investment in existing hardware and software—virtually evaporates, while the Mac's inherent ease of use—and the resulting savings on training costs—makes it that much more attractive an option.

However, Apple is far from resting on its laurels. In a recent speech to the Software Entrepreneurs' Forum, Gassee discussed the future of Macintosh technology—what's going well, and what still needs to be done. The following remarks are excerpted from that speech.

When we brought out the Macintosh Plus a year ago, it was a big deal. It doubled the sales of the Macintosh. When we saw that, we decided to improve it again. Our theory is that when you have a successful product, you don't play with the formula, but you keep improving it.

We wanted to open up the Macintosh to third party developers, because we believe that good personal computers need to be perverted. I'm serious. Because if the computer manufacturer thinks that all the possible usages for the personal computer can be encompassed by the designers, they're very wrong.

We are in the business of getting third party developers to do things that we don't know how to do, that we couldn't even think of doing, don't have the time to do. We don't have the relationship with a given customer, with the different niches of the market.

It was pretty obvious two years ago what we needed to do. I saw the Apple II being successful in 1981, and then I saw another company take a translation of the concept and be very successful with it. But in the process something happened. Instead of operating in an environment where every bit of wisdom flows from one single human head, when we put the teams together at Apple we empowered the engineers to make a number of decisions, including improving on the original design. And that's how the Macintosh II became much better than I had imagined. That's how we got a video card and monitor that has the best video on any personal computer today. That's how we got sound that totally surpasses what anybody does, and will do for the foreseeable future, on any other personal computer. That's how we got a bus structure that will carry us into new usages of personal computers, specifically a lot of good coprocessing and the things we can do on a lot of individual cards. That's how people came up with the idea that maybe we could put the Macintosh Toolbox as a sort of library for UNIX, so that you could have Mac-like applications in UNIX, instead of making the Mac UNIX-like, which is not exactly progress. We've made it so the same object code will run under Mac and under UNIX.

So what kind of new applications do we expect at Apple? I have to repeat that there are things we can't conceive of, because we are prisoners of our own limitations. We want to make computers so that people, by their work, free us from these deficiencies.

I think the most obvious applications for the new Macintosh will be scientific and engineering applications—a lot of graphics-based CAD, CAE. We designed the Mac II so you can have multiple video cards, you can mix and match black and white and color, and the application doesn't have to realize that. This is going to be, for some time, the only personal computer where you can write one application, not knowing anything about monitors, and the customer can create his own display system without touching anything in the application. The operating system will do that for you.

We have great hopes for NuBus, leading to new applications like powerful networking, powerful data acquisitions. That should take our personal computers into areas where they haven't been used .

But I'd like to go back to the *ordinary* applications. We're in the business of making people's lives simpler, not more complicated. Word processing isn't done yet. Spreadsheets aren't done yet. Databases—I don't want to belabor a painful point. Normal people cannot use most of the databases available on most personal computers. You need a Ph.D. in Manual to incorporate some of the features. The most successful databases are successful because they have the clergy, the dot-prompt programmers. We are not finding ways to help people conceptualize ways of managing large volumes of information. You hear about relational databases and stuff like that—customers don't care about that, they parrot the word because they're subjected to an intellectual terrorism, so they have to repeat those sacred words, that mantra. For most people, it doesn't mean that it'll help them manage information.

Desktop publishing—I think it's not done yet. It's too damn complicated—that's my opinion. To me, the most successful desktop publishing program is *MacDraw*, because real people can use it. I don't think most real people can use the desktop publishing programs.

The point I'm trying to make is that it's nice to talk about the whole new applications that will happen because of the new devices on the Mac II, but I think the existing applications should and will benefit even more.

MacWrite was a good word processor. We made a mistake by bundling it for too long, and therefore squelched the marketplace for some time.

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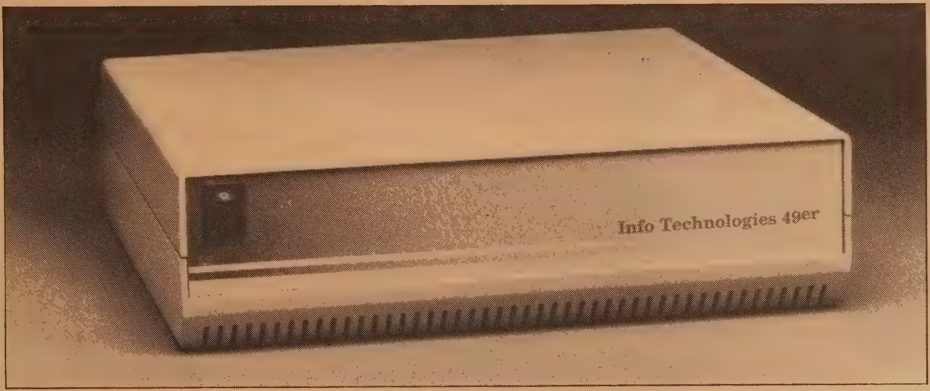

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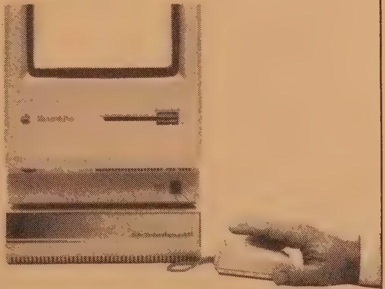

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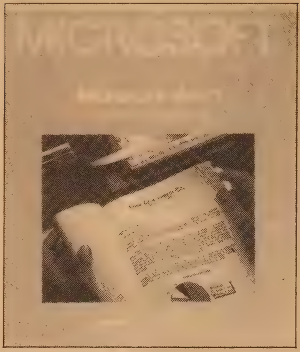


What's New With Word 3.0

By Frank Catalano

Whatever features you're looking for in a word processor, the new, powerful Microsoft *Word 3.0* probably has them. An integrated spelling checker? An outlining function? Footnote procedures? Custom menus? Sorting? On-screen help commands? An ability to create an index? Automatic line numbering? *Word 3.0* has all this and more.

However, features alone are not enough. If they are difficult to use, or if they perform inadequately, you may never use them. And in some cases, when you do use a specific command, you may wish you hadn't. All the features on *Word* are useful; some are easier to use than others.

New users will find *Word 3.0* appealing, since it can operate very well with simplified menus. The "Short Menu" mode displays menus very similar in appearance to those in MacWrite, with a spelling checker and full page view (Page Preview) option added. The "Short Menu" is adequate for short memos or letters, but you need to unleash the power behind the "Full Menus" option to quickly produce more complex documents.

Whatever features you're looking for in a word processor, the new, powerful Microsoft Word 3.0 probably has them.

FULL POWER WORD

Some of the more important features in *Word* allow numbering of lines in a document, searching characters to replace with graphics, linking documents for sequential printing, setting specific paper sizes for production on odd size sheets (including mailing labels), merging only select data to produce form letters, deleting disk files while working in the program, and saving files in seven different formats for easy transfer to other micros. And this is only the beginning.

Word makes extensive use of keyboard commands and the Mac Plus keyboard. Every command is available with or without the aid of the mouse. For example, you can select the menu bar using command-tab on the original keyboard, or by pressing the period on the keypad. Then you can select any menu command using a sequence of numbers and letters. It couldn't be easier.

A new option offers increased flexibility in formatting menu choices. When you make the format selection, you can instruct *Word* to "Apply" the formatting, but leave the dialog box on the screen for further changes. This is very helpful feature for making quick formatting changes to your document.

If it's speed you require in word processing, then the exceptionally fast *Word 3.0* is the best option. To quickly save documents, you can choose a "Fast Save" option. And repagination, although not automatic, is very fast. The best speed enhancement is that of the screen refresh, and scrolling is lightning fast.

OUTLINE VIEW

Since the outline is just a different view of the document, switching to the outline view is quick. While it is nice to have some basic word processing features in the outline mode, using this mode is more cumbersome than I'd like. This, however, is probably the worst thing about *Word 3.0*.

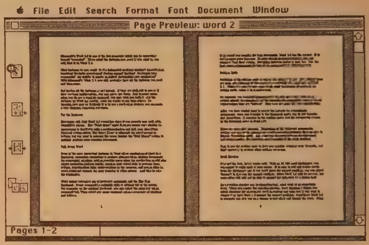
For example, when you're reorganizing paragraphs, as you are often required to do in an outline, sub-paragraphs do not follow unless they are "hidden." The alternative is to cut and paste all the paragraphs, but after using other outline programs which allow for simple clicking and dragging, this becomes annoying. The purpose of the outline view is to provide for easy organizing, but this particular implementation of the idea fails to make it easier than working in a regular document.

There is, however, a more serious problem. After you have worked so hard to organize the different paragraphs and sub-paragraphs, when you transfer to the document mode, the indentations are lost. They will appear again when you return to the outline view, but in the document view, all the paragraphs will appear as flush left. (You can correct this using Style commands, but it is not fun.)

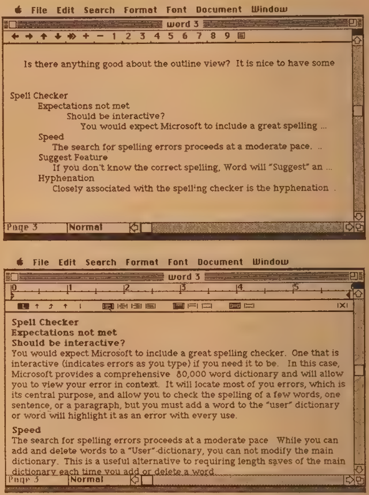
Is there anything good about the outline view? It is nice to have some word processing features available, it handles graphics very well, numbering of paragraphs is easy, and the use of glossaries is very convenient. Using the outline view is also a quick way to move through the document, but that's about it. The outline view is helpful, but it is not a substitute for a comprehensive outlining program.

SPELL CHECKER

You would expect Microsoft to include a great spelling checker, one that is interactive (indicates errors as you type) if you need it to be. In this case, Microsoft provides a comprehensive 80,000-word dictionary and will allow you to view your error in context. It will locate most of your errors, which is its central purpose, and allow you to check the spelling of a few words, one sentence, or a paragraph, but if you want to use a word that's not



Word lets you preview pages side by side.



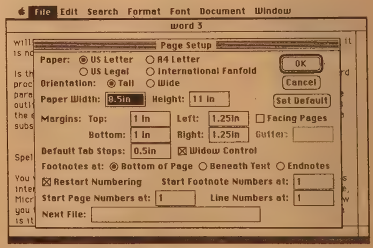
Is there anything good about the outline view? It is nice to have some

Spell Checker
Expectations not met
Should be interactive?
You would expect Microsoft to include a great spelling ...
Speed
The search for spelling errors proceeds at a moderate pace. ..
Suggest Feature
If you don't know the correct spelling, Word will "Suggest" an ...
Hyphenation
Closely associated with the spelling checker is the hyphenation .

Spell Checker
Expectations not met
Should be interactive?
You would expect Microsoft to include a great spelling checker. One that is interactive (indicates errors as you type) if you need it to be. In this case, Microsoft provides a comprehensive 80,000 word dictionary and will allow you to view your error in context. It will locate most of you errors, which is its central purpose, and allow you to check the spelling of a few words, one sentence, or a paragraph, but you must add a word to the "user" dictionary or word will highlight it as an error with every use.

Speed
The search for spelling errors proceeds at a moderate pace While you can add and delete words to a "User" dictionary, you can not modify the main dictionary. This is a useful alternative to requiring length saves of the main dictionary each time you add or delete a word.

The Outline View option lets you switch back and forth between document and outline.



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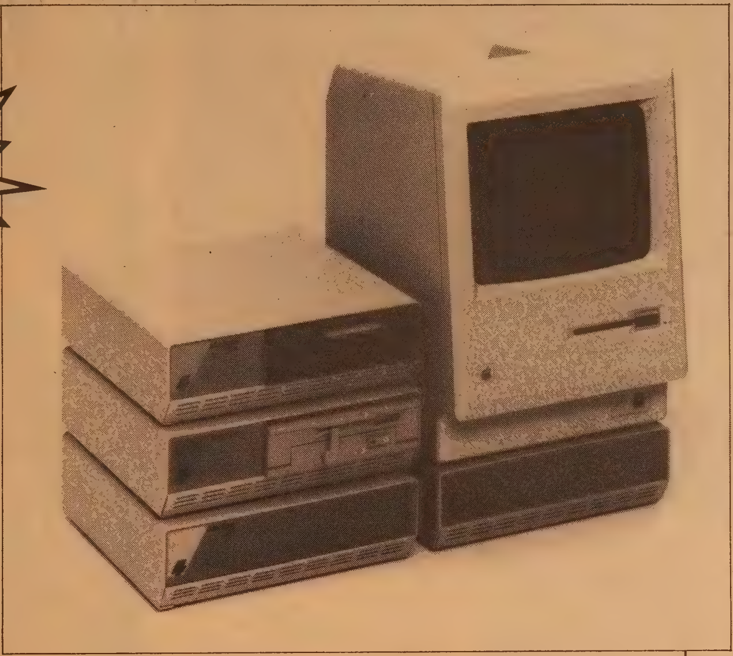

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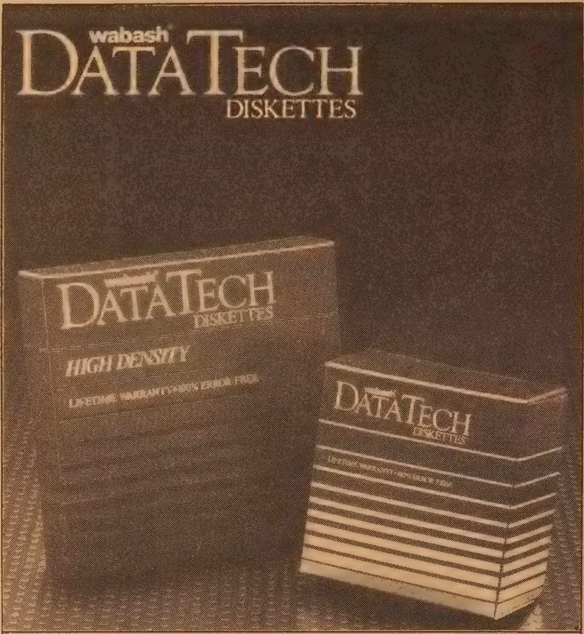
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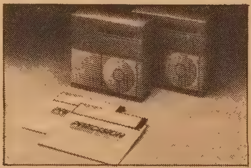

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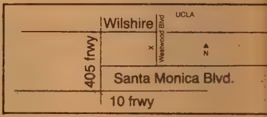
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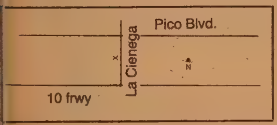

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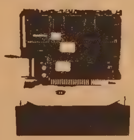

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in the dictionary, you must add it to the "user" dictionary, or *Word* will highlight it as an error with every use.

The search for spelling errors proceeds at a moderate pace. While you can add and delete words to a "User" dictionary, you cannot modify the main dictionary. This is a useful alternative to requiring lengthy saves of the main dictionary each time you add or delete a word.

If you don't know the correct spelling, *Word* will "suggest" an appropriate spelling. There are occasions when you know that the correct spelling is in the Main Dictionary, but *Word* cannot find it because you have committed a serious misspelling. *Word* does not allow you to scroll through the dictionary options.

Closely associated with the spelling checker is the hyphenation option. It works very well. With special characters, you can instruct *Word* to insert hyphens according to your specific needs.

PAGE PREVIEW

Page Preview may be *Word 3.0's* most powerful feature. In this view, you can examine the overall page layout, including positioning of headers, footers, page numbers, and column formatting (which doesn't appear in the document window). The magnifying glass tool in the page preview window allows you to zoom in on any part of the displayed pages. Unfortunately, you are unable to edit at that point, and must return to the document window to make further changes.

Positioning headers, footers, and page numbers is incredibly easy. Just click on the page number icon, click again at the appropriate spot, and the page number will appear. If you know the exact location, if you click and hold the mouse button, the location will appear in the status box. When you release, the page number will remain at that location.

Margin settings are also available in the "Page Preview" view. When you click on the margin tool, the document appears with lines at the margins. You can then click on one of the margin lines and position it as you wish. Clicking outside the document area quick redraws the screen with your selected settings. This is a very simple and welcome feature.

STYLES

Styles commands are an easy way to format text. You define a style by selecting "Define Styles" from the Format Menu and setting the format options of your choice. You can position tabs using the ruler, or select character or paragraph formats from the Format or Font Menus. The settings you choose are stored with that document and can be easily recalled at any time. (It is also possible to store the setting for use in other documents).

Style settings only work on the paragraph or document level. If you would like to use a different style of type on the same line, you must use two different style commands. But don't let this distract you from the overall benefit of style commands.

TABLES OF CONTENTS AND INDEXES

While there's already been a certain amount of complaint about *Word's* implementation of table of contents and index features, this portion of *Word* is undeniably useful and impressive.

You must indicate the words to be included in the index or table of contents by using dot commands. These commands need to be formatted as hidden text so that they appear only on the screen and not when printed, a formatting procedure that is not convenient and seems unnecessary. On the plus side, however, the speed at which the table of contents and index are created is wonderful.

DOCUMENTATION

Word is a powerful but complicated program. Fortunately, Microsoft has provided us with an easy but complete tutorial and a comprehensive reference manual. To get started, you can follow the 140-page tutorial; to answer all your questions, you can refer to the 425-page reference manual. Even the index in the manual helps. With a program this powerful, you are bound to have questions. Both beginners and advanced users will appreciate the manuals.

CONCLUSIONS

This is only the beginning of *Word's* features. It also includes a Switcher feature to allow automatic update of changes made in other programs operating with Switcher, mathematical formulas and calculations, sort features, complete footnote procedures, and convenient "Undo" and cancel commands. Then consider the excellent graphic cropping and resizing features, a full feature ruler, custom menus, and imbedded PostScript commands. Name your feature—it's probably here.

While some people have taken issue with Microsoft on this product; claiming that the company didn't make effective use of the Macintosh interface, I disagree. *Word* is a very complicated program, but it is extremely forgiving. With this much power under the hood, there is an inevitable potential for error.

Word is not perfect, but it is the most powerful word processor available on the Mac. Know its limitations and it won't disappoint you. I highly recommend it. □

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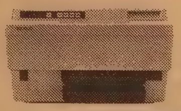

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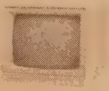

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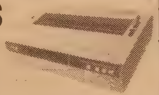

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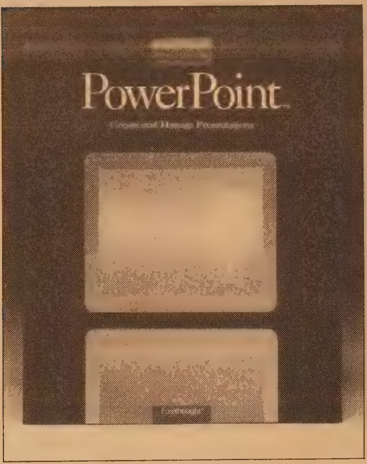


PowerPoint—Powerful Presentations

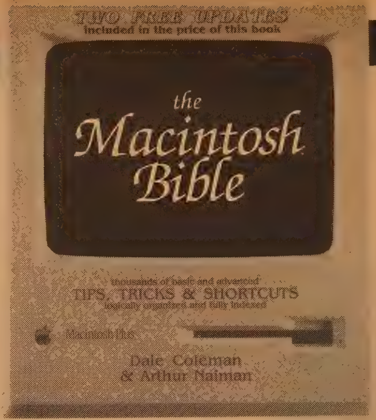
Forethought, Inc. has introduced *PowerPoint*, a software package designed to create and manage business presentations, complete with overhead transparencies, flip charts, speaker's notes and audience handouts. Included with *PowerPoint* is "The Guide to Powerful Presentations" and the Presentation Library, a disk full of pre-designed formats and slide layouts to assist users in preparing presentations with maximum visual impact. The program supports all standard slide sizes for all presentation formats. Call Forethought (408/737-7070) for further information.

Personal Typesetting On The Mac With TeXtures

Addison-Wesley Publishing Company has announced the publication of *TeXtures*, an advanced personal typesettting software package for the Apple Macintosh computer. *TeXtures v1.0* combines the sophistication of the well-known *TeX* typesetting standard with the ease of use associated with the Mac. *TeXtures* lets users compose and typeset many types of material, and is particularly effective for typesetting mathematic formulae and scientific notation, as well as other complex forms of text. The program offers the ability to typeset documents up to several thousands of pages in length. Suggested retail is $495; for more information call Addison-Wesley at (617) 944-3700.

Desktop Express

Apple Computer, Dow Jones & Co. and MCI Communications have jointly announced *Desktop Express*, a new desktop-communications product that allows users to send and receive graphics between remote locations. The software uses the Mac interface, and is the result of a joint development between the three companies. Sharing of graphics and text is done via MCI Mail. There are three communications options: Mac to Mac, hard-copy delivery, and text messages across environments. For information contact Apple Computer at (408) 996-1010.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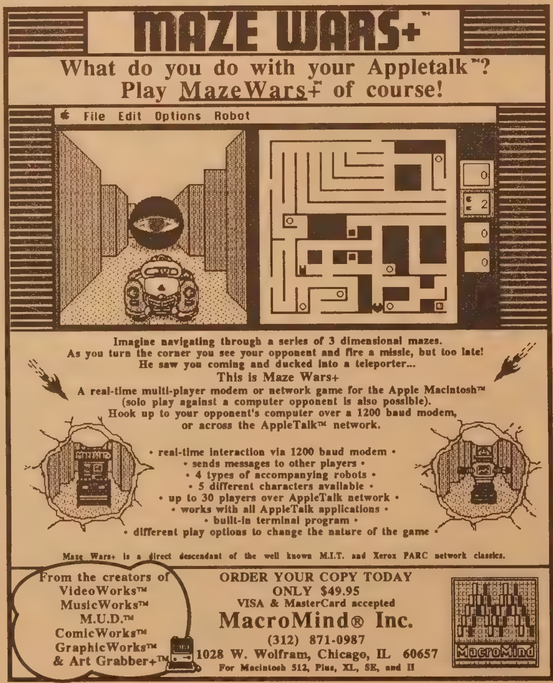
The Ultimate Reference

The Macintosh Bible, by Dale Coleman and Arthur Naiman, offers thousands of useful hints on using your Mac. It offers detailed and specific advice on such matters as system software and utilities, application programs and hardware, as well as tips for future purchases. The book sells for $21; the price includes two free future updates. Inquiries should be directed to Goldstein & Blair, Box 7635, Berkeley, CA 94707, (415) 524-4000.

Mac For Thoroughbreds

One of the more unusual vertical-market applications for Macintosh is *MacHorse*, a complete package (available as a complete turnkey system, if desired) for horse-farm businesses. In addition to a powerful *Omnis 3*-based database, *MacHorse* offers comprehensive mailing and accounting pro-



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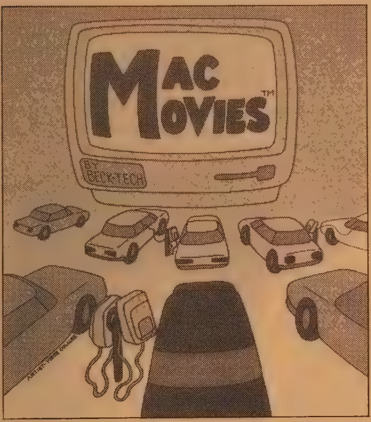
What's Happening?

Check the MicroTimes Calendar of Events in this issue for computer-related classes, seminars, and shows in your area.

grams. Further, it includes all the software options a horse breeder will need for keeping track of health, training, breeding and racing records—all in the user-friendly Macintosh environment. It can also work with *MacWrite*, *MacPaint* and *Dollars And Sense* for particular tasks. So if you'd like to spend more time with your horses and less with your computer, check this package out. *MacHorse* is published by Dapple-Tech Inc., P.O. Box 220, Laurel, MD 20707, (301) 792-2735.

Handy Desk Accessories

SmartScrap and *The Clipper* are two desk accessories that facilitate handling of graphics in the Mac environment. *SmartScrap* replaces the Scrapbook function, enabling you to find pictures easily with a pictorial table of contents, see all of large pictures by using a scrolling function, select any rectangle of a scrapbook picture for easy copying, and much more. It also works with existing Scrapbook files. *The Clipper* is a cropping and scaling tool; it lets you trim and scale pictures to the exact dimensions of the spot you're going to paste them into. It will also let you see the contents of the Clipboard, even in applications that don't support Show Clipboard. Information is available from Solutions International, 29 Main St., P.O. Box 989, Montpelier, VT 05602, (802) 229-9146.

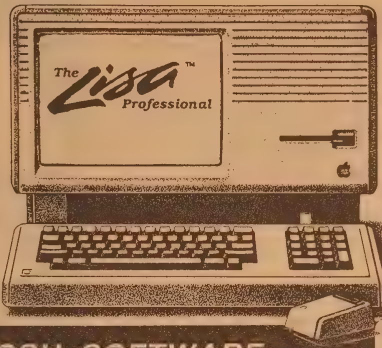


The Animated Mac

Beck-Tech's *MacMovies* converts the Macintosh to an inexpensive, high-quality video production workstation. It works in conjunction with existing tools like *MacPaint*, *SuperPaint*, *FullPaint*, *Easy3D*, *Thunderscan* and *MacVision* to produce sophisticated animated video. New techniques for file compression allow images to be condensed for rapid playback and efficient use of available memory. Movies can be run at speeds up to 30 frames per second. For more information contact Beck-Tech, (415) 548-4054.

Efficient Data Retrieval System

MARS 2 is an electronic document archival and retrieval system that provides a total solution to the ongoing problem of document storage. It takes advantage of such devices as scanners, write-once optical disks, LANs and file servers to provide power with the Mac's renowned ease of use. It includes three levels of security protection, and can be customized to particular environments if desired. For information contact Micro Dynamics, Ltd., (800) 634-7638.



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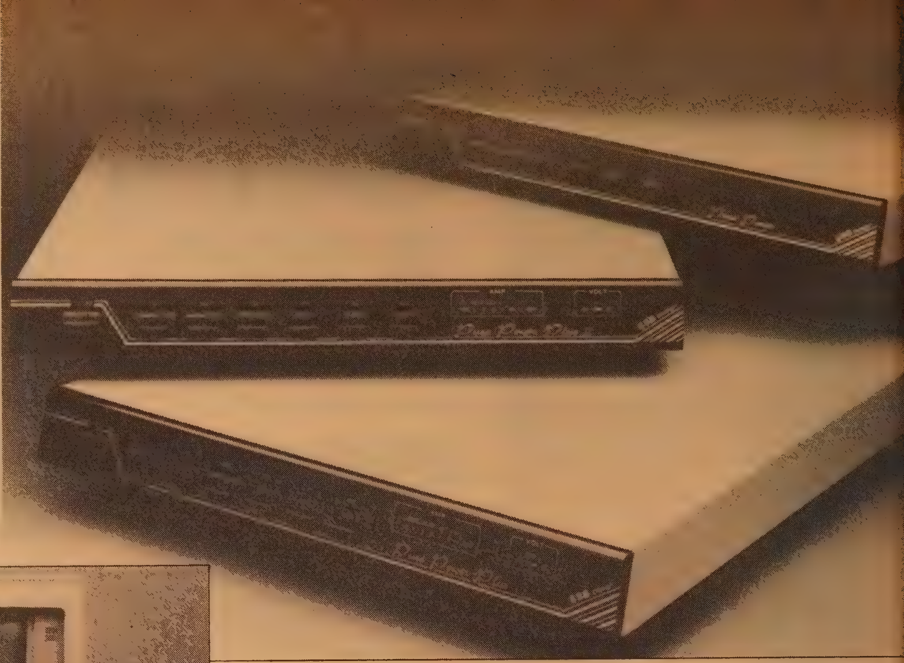
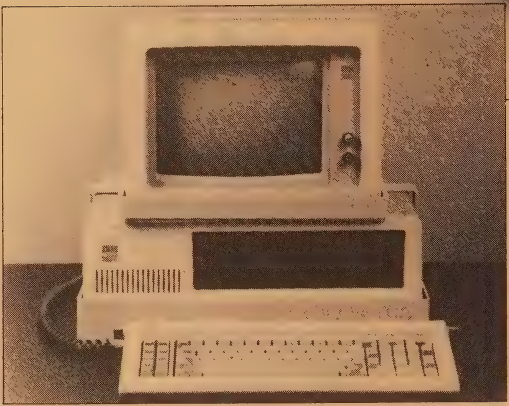
PurePowerPlus, from SSB Design, is an innovative surge suppressor master switch system with a built-in voltage and current indicator. Other features include six power outlets and one control master on/off switch, swivel base, and front panel static discharge. In addition to PurePowerPlus, SSB has announced three other products: PurePower, PurePower II, and PurePowerPlus II, all available now. For the nearest dealer or to order, call (714) 261-6855.



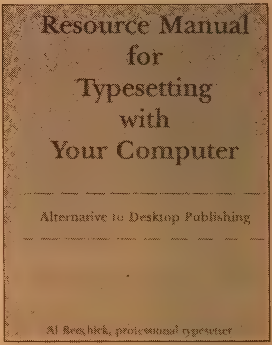


An End To The Disappearing Computer

For about $100 you can buy a lifetime of security for your valuable computer equipment. Armor Lock Corporation's DataLok offers an anti-pry fastening system for preventing theft of computers, computer peripherals and printers. Designed using the heaviest gauge steel in the industry, DataLok is effective in deterring even the most determined attack. And DataLok won't rob you of precious work space. Armor also manufactures FlexLok, a cable security system for use when it's not feasible to drill into the workstation. Contact Armor Lock Corporation, 16 Fairlawn Street, Ho-Ho-Kus, New Jersey 07423, (201) 652-9199.

Do-It-Yourself Typesetting

Resource Manual For Typesetting With Your Computer defines a simple method for typesetting with your computer. Written by professional typesetter Al Beechick, this handy manual gives step-by-step instructions for transforming your computer into a typesetting terminal without investing in expensive equipment. With *Resource Manual*, there is no software to buy, no interface to purchase. The cost is $15 from Arrow Connection, PO Box 899-MT, Pollock Pines, CA 95726.



Resource Manual
for
Typesetting
with
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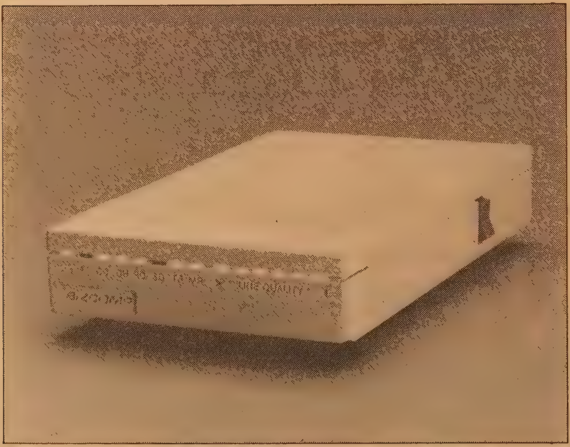
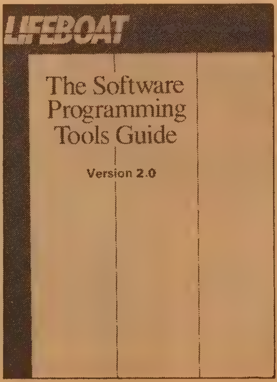
Alternative to Desktop Publishing

Al Beechick, professional typesetter



Bizcomp Boasts Bus

From Bizcomp Corporation, out of Sunnyvale, come the IntelliModem 2400 PC (external) and IntelliModem 2400 PC (internal) 2400 bps modems, each with the new "bus" feature. This internal bus allows standardized connections for all expansion options or production modifications. Each modem is now available for $599. For further information, contact Bizcomp Corporation, 532 Mercury Drive, Sunnyvale, CA 94086, (408) 733-7800.



LIFEBOAT

The Software
Programming
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Version 2.0

Programming Tools Update

An updated version of the *Software Programming Tools Guide* has been issued by Lifeboat Associates. More than 20 pages of new product information have been added. The guide, which details over 130 software development programs, is intended for serious programmers who need assistance in determining the software most appropriate to their needs. It is available free to Lifeboat's Key Account and Key Dealer customers and registered users of Lifeboat's published products or for $10 to other programmers. Write to Lifeboat, 55 South Broadway, Tarrytown, NY 10591.

Join the new publishing revolution

It's over 500 years since the first publishing revolution started with Gutenberg's invention of the moveable type press. Today a new revolution is taking place as members of the business community realize the benefits of controlling their print and publishing output from the desktop.

If you think your company is still back in the Dark Ages when it comes to producing printed material, then take time out to visit the **Desktop Publishing '87 exhibition**

At the show you'll be able to discuss your requirements with the leading vendors in the field including Adobe Systems, DEST, Aldus, Compugraphic, AST Research, AB Dick and Xerox. They'll be showing the latest developments in personal computers and workstations with publishing capabilities; graphics and page make-up software; image scanners, laser printers and typesetting equipment.

For FREE exhibition tickets and a copy of the conference program phone Carol Peters at Online (212) 279-8890

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Changes in the tax laws got you confused? Check out *Winners & Losers: The Tax Planner*, a software package for the IBM PC with a minimum of 256K RAM. It allows the user to create countless "what-if" scenarios to determine the effects of major expenditures or changes in financial status on the user's taxes. Users can create and store an unlimited number of files. *Winners & Losers* is priced at a low $39.95 and can be purchased through Sertan Sense, Inc., 3145 Geary Blvd., Suite 407, San Francisco, CA 94118.

Winners & Losers
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VDT Power Supply

Protecting multi-user systems against the dire problems caused by power interruptions has always been a problem. Now LF Technologies of Carson City has a solution—the VDT Guardian Terminal Pak, an online, uninterruptible power supply specifically designed for micro, mini and mainframe video display terminals. The VDT Guardian is a compact unit that sits directly under the monitor and is easily installed. It sells for $149, making it affordable to protect all the terminals on a system. For information, call LF Technologies at (702) 883-7611.

386
NOBLE 386

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PC Discount of Houston offers its own 80386-based PC, the Noble 386, priced at $3999. The unit features a 40 MB hard disk drive, a 1.2 MB floppy disk drive, and a 101-key keyboard. It includes a slot for an 80387 math coprocessor plus eight expansion slots and a standard 1 MB of RAM, expandable to four gigabytes. For information call PC Discount at (713) 864-0295 for information.

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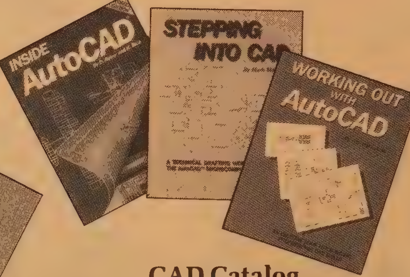
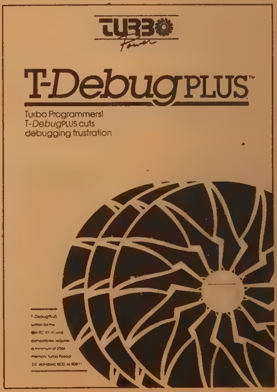


CAD Catalog

New Riders Publishing have the CAD industry covered with their three latest book selections. *Inside AutoCAD*, by D. Raker and H. Rice, and its companion workbook *Working Out With AutoCAD*, by Martha Lubow, provide all the information necessary for effectively using *AutoCAD*. Together they provide basic design technique and strategy for developing maximum productivity. *Inside* sells for $34.95, *Working Out* is $29.95 and both are chock-full of useful illustrations. New Riders is also offering a CAD curriculum workbook called *Stepping Into CAD*. Author Mark Merickel gives practical hands-on training including structured drafting exercises and drawing menu sequences. It is available for $24.95. New Riders Publishing, PO Box 4846, Thousand Oaks, CA 91360.

TDebug Plus

Announcing a new run time symbolic debugger for Turbo Pascal. From TurboPower Software comes *TDebugPlus* which gives Turbo Pascal programmers the ability to trace, set breakpoints and examine and set variables at run time, using the symbolic variable names from their Pascal source code. Added pluses include a special MAP file generation mode, a reference card and 80 page manual. Turbo Pascal 3.0 and an IBM compatible with 256K are required. The price is $60. To order, call (800) 538-8157 ext. 830. In California, call (800) 672-3470 ext. 830.



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Graphics And The Business Professional

By Ken Milburn

Despite the aversion to graphics and design professed by the business people who control the vast majority of personal computers, there are strong indications that this will be the year of computer graphics in ordinary business. Why? Because graphical capabilities help to humanize the computer interface, thereby cutting stress and training time. Because pictures sell ideas, goods and services more effectively (especially in the age of television). And because graphical capabilities have become both practical and affordable.

> **You've already put a lot of time and money into your PC, and it needn't go to waste. It's still the most widely used, supported and versatile system around. And no Macintosh can do anything your PC doesn't have at least the potential to do.**

The evidence that business is demanding visual appeal in computing is abundant. Witness the growth in sales of the Macintosh: up over 100% in the past 14 months and now outselling all IBM-brand personal computers. The number of Enhanced Graphic Cards and color monitors (mostly multi-syncs) is now estimated by some analysts to be more than 25% of the installed base. Several of the "Top Ten" on the SoftSel Hot List are graphics applications like Lotus' *Freelance, Generic CADD*, and *PCPaintbrush*.

The recent hot product announcements have been almost exclusively related to the affordable implementation of fast, high-resolution graphics on personal computers. This can be seen in products such as Intel's 82786 and TI's 34010 graphics co-processors, 80386-based PC-compatibles, higher resolution EGA-compatible display cards, the NEC Multisync monitor (which has spawned more than half a dozen imitators in less than six months) and the open bus, large-screen, high-resolution color Mac II.

The Macintosh has been the platform for proving that graphics can be used to broaden fundamental business applications, along with making them natural to use and significantly more productive.

If you're a dyed-in-the-wool PC fanatic like I am, you probably won't believe that. I stubbornly continued to think of the Mac as the "Marin Etch-A-Sketch" until I was assigned a feature on the use of the Macintosh in scientific word processing. Spend an hour each with any two of these Mac applications: Microsoft *Word 3.0*, Microsoft *Excel*, Microsoft *Works*, *File Vision*, *Guide* or *SuperPaint*. If they don't make a believer out of you, I'll eat my hat.

I don't mean you should go out and donate your PC to your favorite charity. You've already put a lot of time and money into it and it needn't go to waste. It's still the most widely used, supported and versatile system around. And no Macintosh can do anything your PC doesn't have at least the potential to do. Even "desktop publishing," the main excuse for sneaking so many Macs into Brooks Brothers suits, can now be implemented just as well, and some say better, on a PC.

In that spirit, let's take a look at some hardware and applications that can profitably and synergistically expand your PC's graphical abilities. Although I've described several of these items in past columns, I would like to mention them again and place them in context.

Unless you need the tax deduction, don't rush out to buy all this stuff at once. The idea here is to give you a list of hardware and software you can add one piece at a time, with an eye towards a fully-capable system in the future. In the process, you needn't outmode the work you've already done.

BOARDS FOR SPEED AND RESOLUTION

First, do whatever you can to speed up your computer. Windows, publishing and computer-aided design and drafting heavily tax your processor. This problem is compounded by the programs' need to keep re-drawing the screen. A math co-processor, therefore, is the first step you need to take. Since 286 turbo cards can cause problems, move up to an AT or 386. Or check out the 386 turbo cards (all claim 100% compatibility). I haven't tested any of the these yet, nor seen much in the way of published tests, but Orchid Technologies is offering an outstanding bargain for under $1,200.

Hold off on the graphics co-processor boards for another three to six months. They will speed graphics up, but won't help out your other applications like the first two options. Besides, several "single-board" solutions have been announced that will incorporate one of the graphics co-processors, double EGA resolution and still be EGA/CGA/MDA downward-compatible. Some are slated to retail for $995 and should become a reality by mid-summer.

Too bad, because the next logical step would be to add a high-resolution color graphics card to your system. The newest generation is EEGA (for Enhanced Extended Graphics Adapters), which improves resolution to 640 × 480. That's a 37% improvement and makes each pixel square, so that what you see on screen is more like what you get from a laser printer.

> **Do whatever you can to speed up your computer. Windows, publishing, and CADD heavily tax your processor. This problem is compounded by the programs' need to keep re-drawing the screen. A math coprocessor, therefore, is the first step you need to take.**

I've touted the Paradise AutoSwitch EGA in the past because it configures itself to your software and monitor, taking all the hassle out of configuration. All you have to do is plug it in any slot, plug in the monitor and forget about it. The EEGA version arrived just a few days before this column was written and it's even slicker. There's a menu for setting up for 132 column

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Copyright © 1987 by Ken Milburn. All rights reserved. Ken Milburn is a freelance writer on Microcomputers. His articles have appeared in numerous computer publications, including PCWorld, InfoWorld, Computer Graphics World *and* MicroTimes. *He also does system configuration for small businesses. He can be reached at (415) 331-6926 or by sending E-mail to (ken) on The WELL, (415) 332-6106.*

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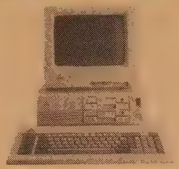

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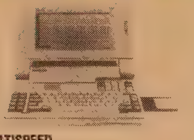

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mode if you want to view a wide spreadsheet or 42 lines of text in *WordPerfect* or *WordStar*.

The great failing of most of the "enhanced" EGA cards is that very little software will take advantage of the 480-line mode. Paradise entered the race a couple of months late so they could ship their card with drivers for the most popular applications, such as *Windows*, *GEM*, *PageMaker*, *Ventura Publisher*, *Lotus*, *Word Perfect*, *WordStar*, *EGAPaint!*, *AutoCAD* and *CAD-Vance*. When I tested it with *Ventura* and *AutoCAD*, the extra 130 lines made a major difference. Of course, this card is still completely compatible with software that's set up for CGA, MDA, Hercules and (unique to Paradise) Plantronics display standards.

MONITORS: NEW STANDARDS COMING

You don't have to buy a monitor at the same time you buy a card, as EGA and EEGA cards will work just fine with monochrome monitors and with non-EGA color monitors. These monitors do provide crummy resolution, however.

Eventually, you'll need a monitor labeled "multisync" or "multiscan" to take advantage of extra resolution. This way your monitor investment is somewhat protected when the next generation of display cards comes along. Most of the major Japanese tube-makers now make a multi-synchronous model, but the original from NEC Multisync is still coming out on top in comparative reviews. They concur that its image is sharper, colors brighter and that it manifests less distortion than its competition.

MICE REVISITED

Graphics applications require an ability to move the cursor quickly about the screen. A mouse is the cheapest and most widely supported way to do that. I've recently had occasion to re-review the latest Microsoft and Mouse Systems mice and like them both. They are smooth and accurate and neither of them has the "port amnesia" that the Logitech C7+ seems to randomly exhibit.

I'd still, however, put my money on the C7 for three reasons: its bargain price (under $100), its compatibility with nearly all software and its amazing programmability. The software it comes with lets you turn any application (like *WordPerfect*) into a mouse-based "point and click" operation with "window shade" menus.

OUTPUT—OPTIONS AND LIMITATIONS

Hard copy output is the final thing to consider. Daisywheel printers can't print graphics at all. If you own an IBM Proprinter or an Epson FX80, you'll be able to print grainy full-page black & white graphics, but you won't be proud to show them to a client. Twenty-four pin printers, like the rugged Toshiba 3-in-1 series, can print at near-laser printer resolution of 180×360 dots-per-inch. At $500 to $1,200 (depending on speed, carriage width and features), printers of this type will give you the most versatility for the money. The compromise is speed, and to a lesser degree, image quality.

Laser-printers can do the most professional looking monochrome drawing and typesetting, but you'll need a megabyte of printer memory for full-page graphics. And most publishing software will require the PostScript page description language for full-featured "typesetting."

The Apple LaserWriter and the QMS PS800 are the most popular of the lasers that meet both these requirements. They are, consequently, the easiest to find, repair and buy supplies for.

The Laser Connection's PSJet will convert your H-P LaserJet in order to meet these requirements(see last month's column on PC desktop publishing). I prefer the PS800/LaserJets because they're a bit quicker at formatting multiple page documents than the Apple products. Mine has proven both reliable and totally compatible with both the Mac and the PC.

> **We're still stuck with traditional publishing methods when it comes to color, but you can send your page makeup program's files directly to printshops that have PostScript-equipped typesetting machines. The printer can then insert your color graphics wherever you've left space for them.**

There are some newer PostScript lasers based on the Ricoh printer engine that produce denser blacks and more copies between cartridge replacements, but I hesitate to recommend them until they've been out there long enough to establish a service record.

There aren't any panaceas for color hard copy. The Xerox 4020 inkjet printer produces vivid and streak-free overhead transparencies for the presentation of business graphics and word charts. In that application, it will outperform plotters in both speed and quality. On the other hand, pen plotters are the most affordable way to produce pro-level architectural, engineering and technical drawings.

Thirty-five millimeter slides are the only media that can faithfully reproduce everything your computer can produce. They are also the only affordable means of distributing "paint" illustrations. If your screen's resolution and colors are good enough to suit your purpose, you can shoot it with your Nikon, a tripod and a close-up lens. If not, there are several film recorders that can enhance both the screen resolution and the number of colors.

The Polaroid Palette, at $2,995 in the new EGA version, is the least expensive and most popular of these. It also has the lowest resolution. If you want slides for publication or large-screen projection, it's possible to send your floppies to a service that will reproduce them with 4,000 or more lines of resolution at prices ranging from $5 to $25 each. If you have lots of slides to produce, it may pay to buy or lease an ultra-high resolution recorder yourself. General Parametrics, Bell & Howell, Matrix and CalComp offer 2,000 to 6,000 line units at prices ranging from $6,000 to $15,000.

Here's a way of judging what resolution you'll need: 2,000 lines will look good in the Boardroom; 4,000 lines will be crisp at the annual stockholder's meeting and 6,000 lines is good enough for full-page color reproduction in IBM's annual report.

We're still stuck with traditional publishing methods when it comes to color, but you can send your page-makeup program's files directly to printshops that have PostScript-equipped models of Linotronic or Compugraphic typesetting machines. The printer can then insert, or "strip-in," your color graphics wherever you've left space for them.

RECOMMENDATIONS

Of course, the purpose in building the graphics capabilities of your hardware is to provide yourself with a foundation for the kind of graphics applications that can contribute to the everyday operation of your business. That's an upcoming column's worth of discussion. In the meantime, here's a list of programs that'll give you the most capability for the money and that also work best together.

First, Xerox's *Ventura Publisher*—because it's super-efficient at publishing standardized business documents, works with the files created by your word processor, doesn't require an AT, and can incorporate images from any of the other applications in this list.

For presentation-quality business graphics—*GEM Graph*, *Draw* and *WordChart—because they share Ventura*'s user interface, come with lots of pre-drawn artwork and layout templates, support the same fonts as *Ventura* and support the 640×480 screen resolution of the new Paradise Autoswitch.

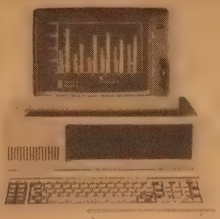
For freehand illustration—*Publisher's Paintbrush*—because this latest incarnation of the de-facto standard *PCPaintbrush* allows you to illustrate at maximum PostScript resolution, "capture" images from any MDA, CGA or EGA screen, edit at four levels of "zoom" for fine detail work, accept images from image scanners and work with several film recorders.

For technical illustration and engineering drawings—*AutoSketch*—because it supports a wide range of plotters, works with most dot-matrix printers, offers professional-level drawing/editing features and accuracy and has a "point & click" user-interface that is as easy to grasp as the other programs in this list.

Brightbill Robert's *Show Partner* is in a unique category. It can take EGA screen images from any of the programs above (or any other PC program) and turn them into an on-screen animated "slide show." It's so well designed that you can put together your first attention-getting show in a short afternoon. *Show Partner* also has a hidden talent that can be a useful contribution to your other graphics tools. It turns a four-color, 320 X 200 dot CGA image into a 16-color 640 X 350 EGA screen. *Publisher's Paintbrush* can take it from there. For a mere $79.50, how could you go wrong?

By the way, you don't need to be an artist to make use of any of these programs. Most of them come with basic image libraries for use in business publications and presentations. Thousands more of these "ready-made" pictures, typefaces, borders, maps and technical symbols can be purchased on disk. Soon you will be able to download them through your modem or read them from a compact laser disk. Moreover, any of the PC-compatible desktop scanners will let you take art from the printed page and edit it in *Publisher's Paintbrush*. As Tom Lehrer said, "Plagiarize! Let no one else's work evade your eyes. That's why the good Lord made your eyes!"

Now all we need is a program that will let us "trace" the dot-formed paint image into a drafting program so that we can turn it into a technical drawing; then rotate, distort or re-scale it without impaired image quality. You can do that already with Adobe's *Illustrator* on the Mac. The PC can't be far behind. Can it? ☐



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Job Control for UNIX

By Bennett Falk

There was a time when a computer, in order to be powerful, also had to be big, clunky, and expensive. The people who used such computers quickly developed a finely honed understanding of the need for "job control": the computers of that generation were too expensive to be left idle, and too big for a system administrator to depend on face-to-face meetings to tell users what they could or could not do at certain times of day.

Consequently, "job control systems" emerged which allowed the computer administrator to decide the sequence in which jobs would be run, the number of jobs that would be allowed to run concurrently, and the relative priority of jobs queued for execution. Users, for their part, were faced with the task of using a "job control language" to describe as exhaustively as possible what they wanted the computer to do. Job control languages were a great advance over stacks of punch cards, but still a far cry from the less confusing interactive command interpreters which are common today.

While big computers are still around and still use such job control tools, computer power is now available in more compact, less expensive form. Users of the smaller, cheaper machines may not initially perceive the importance of job control—in the modern office with a medium-sized business computer, idle time is rarely deemed critical, and most of the users can yell at each other personally when they need to use some scarce resource, such as a tape drive or a modem line.

ON THE NEED FOR JOB CONTROL ON MEDIUM-SIZED SYSTEMS

All the same, the new generation of business computers has its own problems. Many of these stem from the difficulty of assessing just how powerful the computer at your fingertips really is. Everyone knows these machines are "multi-user" and "multi-tasking." However, nobody seems to be quite sure just how many "multi" is. All too often, people readily assume that any machine capable of doing more than one thing at a time must be just about infinitely powerful. Clearly, this is not so. On the other hand, given the mix of activities to be performed on small UNIX computers, judging what a reasonable system load might be is no mean feat.

This problem rapidly becomes a matter of job control: can the overall system load be balanced to suit the capabilities of the hardware—without inconveniencing users? In most cases this means deferring processes that require little operator interaction to a time when the computer is relatively inactive.

UNIX itself contains some tools to do this sort of work. At one extreme, the system imposes limits on both the number of simultaneous processes and the number of concurrent processes per user. Presently, however, at most UNIX installations, these system limits are set well beyond the capacities of the hardware. Computer performance will typically degrade to unacceptable levels long before the process table is full or the maximum number of processes per user is reached. Changing these limits is certainly possible, but finding a configuration that works for all the different patterns of use the computer must bear may be difficult.

Apart from system-wide parameters, the UNIX command interpreters or "shells" serve as a kind of job control language, though they usually function more to provide a convenient environment for users than to balance the demand for system resources. Besides, the UNIX command interpreters offer only scanty support for batch processing, apart from the ability to put jobs in the background. The shell is designed primarily as an interactive command interpreter, and this may actually impede sound work management on systems whose work load is largely independent of operator intervention.

Other UNIX utilities allow users to control the impact of their work on the overall system load. On most systems, any user may schedule processes for future execution using "at" and "cron" or, with the "nice" command, voluntarily set a lower execution priority for any command that might monopolize the CPU. Other utilities allow any user to check on the current status of processes ("ps", "sar", or "gsar"), to wait for background processes to finish before continuing in foreground ("wait"), and to kill unnecessary or errant processes ("kill").

But these built-in features don't really provide a systematic alternative to interactive processing; the native UNIX batch processing capabilities are patchwork at best. There is, in effect, a "work management gap" in the UNIX world.

TASKFORCE V

TaskForce V (Taskforce Software Corporation, 364 16th Ave., San Francisco, CA 94118) is a commercial software package that addresses this problem and brings job control facilities to UNIX. *TaskForce V* is a set of system management tools for users and system administrators alike. At their best, the tools provide an interface to operating system services that is at once easy to use and capable of moderating the system's overall work load.

TaskForce V runs on computers with UNIX System V and its optional Interprocess Communication (IPC) extensions. This may sound ominous, but *TaskForce V* has been ported to machines as small as the PC-AT running Microport.

TaskForce V has three components: a menu development system, a command interface known as "the Prompter," and a set of utilities that let the system administrator manage the flow of activity through the system. These components can be used independently of each other, but together they bring full scale work management within the grasp of even relatively inexperienced system administrators.

The TaskForce Menu System allows the administrator to build an interface for any user or group of users on the system. In a tightly controlled system, the interface provided by the menu system (and the Prompter) would take the place of the UNIX shell for most users. The menu interface can be "task specific," enabling the user to maneuver through a set of commands that are directly relevant to that user's work. TaskForce menus (and the Prompter described below) reference a "global task table" which defines not only which commands can be built into the menus, but the user and group permissions attached to both commands and menu items. The global task table is relatively independent of the job control system itself, but can be used to define user access to job control facilities.

The Prompter is also an interface tool, but one that is specific to individual commands. It is typically used to execute any command that can be run from the UNIX shell. But in place of the sometimes painfully terse UNIX command line, the user is prompted with a full-screen form that outlines the structure of the command line complete with any options attached to the command being executed. The full-screen form provides ample space for explanatory material, making the Prompter an excellent tool for becoming familiar with UNIX commands and their options. In addition, the system administrator may incorporate defaults in Prompter screens to ease the user's burden from the outset.

Finally, *TaskForce V* includes of a set of utilities that constitute the work management system. These utilities allow the system administrator to define, modify, or delete the various components of the job control system. Also present are utilities which govern maintenance of UNIX user and group IDs, as well as a profile describing each user's access to commands while working in the TaskForce Prompter or Menus. Any of these utilities can be run from the UNIX shell, but in practice they are probably best used from the menu system and Prompter screens provided with the package.

Bennett Falk is an Application Specialist for BASIS, Inc., and has been enthralled by UNIX, its uses and users, for quite some time now. *Copyright © 1987 by Bennett Falk. All rights reserved.*

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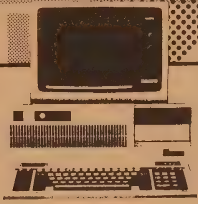

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- AT Keyboard
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- TTL Hi-Res Monitor
- Assembled and Fully Tested
- 1 Yr Warranty Including Parts and Labor

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Color: **$749.00**

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- 640K on Board
- AT Type Keyboard
- 1 360K Drive
- Floppy Disk Controller
- Monochrome Graphics Card w/Printer Port
- TTL Hi-Res Monitor
- Assembled and Fully Tested
- 1 Yr Warranty Including Parts and Labor

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HOW IT WORKS

TaskForce V organizes system activity into "jobs" which are ordinarily placed in queues and executed in sequence. It is, in effect, a complete system for unattended batch processing on UNIX machines.

The first step in building the work management system is the creation of job queues, job descriptions, and spool descriptions for the work to be governed by *TaskForce V.*

"Job queues" are just that: First-In-First-Out queues of commands to be executed. UNIX has traditionally used queues for certain kinds of activity (such as printing and automated communications between machines). *TaskForce V,* however, allows the system administrator to create queues for the execution of any command—naturally, care should be taken not to queue any command that requires operator input.

In creating a job queue, the system administrator has the opportunity to specify the number of jobs the queue can hold, the default priority level for selecting which jobs in the queue to run, the UNIX "nice" value to be used, the number of jobs that can be run concurrently from the queue, a description of the queue, and a queue name.

"Job descriptions" are basically templates that describe how a job is to be done. The description itself consists of the name of the template, the command to be executed, text describing what the job does, directions for handling both output and status messages, queueing priority, the name of the queue to which the job is assigned, the job's execution priority (UNIX "nice" value), the degree of detail to be kept in the job log, and the UNIX directory from which the job is to be executed. While job descriptions are potentially complicated things, just about every component of the template is optional except the name of the job description. Even the command line itself is not absolutely necessary.

"Spool descriptions" are *TaskForce V* templates that describe what is to be done with any output from a queued job. These consist of a name, a reference to another template or a UNIX command, a title to be displayed in Prompter screens, a short explanation of the spool description, and any command line options needed for output processing.

Once these structures are in place, the system administrator can control the level of activity on the system by manipulating the job queues. Queues may be stopped or started at the administrator's discretion. A common application is to dedicate a queue to night processing activity and allow users to submit requests to the queue throughout the day. At the end of the day, the queue is started and the jobs are processed in sequence during the night.

By changing factors like the "priority level" or the "activity level" of a queue, the administrator can tune the queue to respond to the work load on the computer at any given time. If, for example, an unusually long job is causing a backlog in a queue whose activity level is set to one, the administrator can relieve the bottleneck by increasing the activity level to allow more than one job at a time to be executed from that queue. Similarly, raising the priority level of a queue will defer jobs below the new priority level for later execution.

With the *TaskForce V* job control system, using the computer is basically a matter of creating jobs and submitting them to queues. Although these things could be done from the UNIX command line, this activity is probably best left to a specialized interface, such as the menu system or the Prompter, enabling the user to take advantage of any default values established by the adminstrator. In most instances, working with *TaskForce V* will look very much like working with any other menu-driven or form-driven application.

The job control facilities in *TaskForce V* are very sound and a worthy addition to any UNIX system that has any batch processing requirements at all. Products like *TaskForce V* do face an uphill battle in becoming widely accepted. The issue, oddly enough, is not the idea of job control itself—gradually, the need for job control is being realized across the whole spectrum of multi-user computers.

The real challenge for *TaskForce V* and products like it is to achieve some degree of intergration with existing applications, which, typically, are already menu-driven to some degree. For example, no one who does accounting wants to enter transactions using one menu system and then start an entirely different product just to queue the task of posting the day's transactions. It is more to the point to have the queueing commands embedded in the existing application and more or less out of the user's way. *TaskForce V* is admirably suited to this sort of integration: it would be a relatively straightforward thing to include calls to the job control system in any application menu that's open to modification.

However the problem of integrating job control facilities with existing applications is resolved, job control software (and *TaskForce V* in particular) will continue to be a hot item as the UNIX community looks for ways to improve performance. ☐

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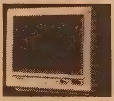
CGA Spec.
640x200
Resolution.



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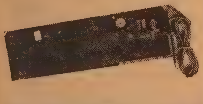

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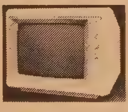

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So You Want To Be A Computer Consultant?

By Robert D. Athey Jr.

I receive calls almost daily on computer questions. Many of these calls are complex, and beyond my expertise. I therefore refer them to a wide variety of helpers in the computer community. Sometimes I'll pass the ball to a specific person. Most often, however, I'll refer the caller to the local user groups.

Some callers, however, still insist upon my help. If the question can be answered in a few minutes over the phone, I'll give it a try. But because computer consulting is my business, I try to keep such free advice short and to the point.

There are many new users who need help with the complexities of word processing, spreadsheets and database programs. These new users often cannot afford high-priced or pressed-for-time consultants. If you are interested in this type of consulting, and have the experience and the patience, this situation provides an excellent opportunity to start your own consulting business.

To do consulting of this sort, there are three main things to make sure of before you start.

First of all, make sure you and the client come to an understanding about exactly what help you are to provide. Believe me, there's nothing worse than having a current (or worse yet, a former) client mad at you because he believes you did not deliver what he wanted. It is best to get the job defined in writing. This may seem to be a pain for small jobs, but it is good discipline for the larger and more complex consultations down the line.

In computer consulting, never underestimate how long a job will take, as some people are slower to learn than others. The written job description should state what you will teach and how the client's progress will be measured. It should also include a time limit for the learning process.

The client should make a commitment to practice between sessions. This way questions and problems that arise during the user's own work can be dealt with the next time you get together.

You should also come up with an agreement as to the expenses, if any, you'll be allowed.

The second thing you need to do is prepare a fee schedule. I use a sliding fee scale that reduces the client's cost per hour as the number of hours increases. I have a printout from a spreadsheet template that breaks down the cost to the client by the hour, by total hours, and by the average after each successive hour. All this is not necessary for the consultant who uses a flat fee. But I find that a sliding fee scale encourages more usage.

The template I use is shown in the inset box. The letters across the top are column designations and the numbers on the left are line numbers from the spread sheet. The items in parentheses are equations I use to calculate what I need to know for billing clients as time passes on their projects. The X represents the highest amount I'll charge.

TEMPLATE FOR CALCULATING CONSULTING FEES

```
a    b      c        d          e         f        g     h
1
2   FEE SCHEDULE FOR CONSULTING
3
4     Hour                Cumulative     Avg.$
5    Worked    Rate,$       $Total      that hr.
6
7      1         X            X            X
8      2         X        (c8+d7)      (d8/b8)
9      3         X        (c9+d8)      (d9/b9)
10     4         X        (c10+d9)     (d10/b10)
11     5         X        (c11+d10)    (d11/b11)
12     6         X        (c12+d11)    (d12/b12)
13     7         X        (c13+d12)    (d13/b13)
14     8         X        (c14+d13)    (d14/b14)
15     9         X        (c15+d14)    (d15/b15)
16    10         X        (c16+d15)    (d16/b16)
17    11      (0.9*X)     (c17+d16)    (d17/b17)
18    12      (0.9*X)     (c18+d17)    (d18/b18)
19    13      (0.9*X)     (c19+d18)    (d19/b19)
20    14      (0.9*X)     (c20+d19)    (d20/b20)
21    15      (0.9*X)     (c21+d20)    (d21/b21)
22    16      (0.9*X)     (c22+d21)    (d22/b22)
23    17      (0.9*X)     (c23+d22)    (d23/b23)
- - - - - - - - - - - - - - - - - - - - - - - - - - -
42    36      (0.9*X)     (c42+d41)    (d42/b42)
43    37      (0.9*X)     (c43+d42)    (d43/b43)
44    38      (0.9*X)     (c44+d43)    (d44/b44)
45    39      (0.9*X)     (c45+d44)    (d45/b45)
46    40      (0.9*X)     (c46+d45)    (d46/b46)
```

The third thing you'll need for consulting is a standard invoice form that is sent to the client at the end of the month. You can use a word processor template, but I prefer to do it with a spreadsheet. The use of the spreadsheet makes the inclusion of expenses (travel, mailing, telephone, subcontractors, etc.) and other fees easy to calculate. Admittedly, these may not show up on your jobs for a user who just bought an Osborne 1 or a Kaypro II at the flea market, but they should be taken into consideration.

The template I use for the invoice is shown in the second inset. You'll have to fill in the items in brackets. The parentheses are formulas for calculations.

TEMPLATE FOR CONSULTING INVOICES

```
a    b    c    d    e    f    g    h
1
2  INVOICE FOR CONSULTING SERVICES
3
4                                     [date]
5
6
7                                     [name]
8                                     [street]
9                                     [town]
10                                    [state/zip]
11
12
13  TO: [Client Name and Address]
14
15  Reference: [Purchase order or agreement]
16
17  [XXX] days since last invoice
18  Unpaid amount from last invoice    [XXXXX.XX]
19  Service charges from late payment  (0.0005*XXX*XXXXX.XX
20  ---------------------------------------------------------
21            Subtotal                 (f18+f19)
22
23  [X] hours at $100/hr.              (100*X)
24  Telephone Expenses                 XX.XX
25  [XX] Miles at $0.205/mile          (0.205*XX)
26  ---------------------------------------------------------
27            Total                    (sum(f21:f25))
28
29
30
31
32
33
34  NOTE: Payable within 30 days of invoice date. Late
35  payments will be assessed a service charge of
36  0.05% per day retroactive to the invoice date.
37
38
39
40
---------------------------------------------------------
```

Consulting is an up and down business. Some of the time you'll be swamped with more work than you can handle. Other times you'll look longingly at the phone or mail box. Use slow times to catch up on writing because busy times are very hectic. Feast or famine is what you can expect. But you can also expect to be somebody's hero when you solve the other guy's problem.

In other news, there's an interesting new remote bulletin board called CHEMSOFTWARE, based in Los Angeles and Massachusetts. The RBB will give you information on MSDS (Material Safety Data Sheets) and OSHA (Occupational Safety and Health Administration) requirements for the chemicals used in industry. It is sponsored by Marblehead Labs of Massachusetts, a consulting, testing and formulating organization for the paint industry. The phone in the Los Angeles area is (818)881-2586. The RBB operates with Procomm software at 8 bits with no parity and one stop bit.

Their representative invited me to dial them up recently at the Western Coating Symposium. He was telling me of their MS-DOS software for paint batch cards (the recipes paint makers use to mix paint) that ties the resulting paints to inventory control and MSDS sheets. Where will computers go next? ☐

Bob Athey has over 20 years of experience working on computers and runs his own company on chemical consulting and contract research. He can be reached through MicroTimes or at (415) 526-3541.

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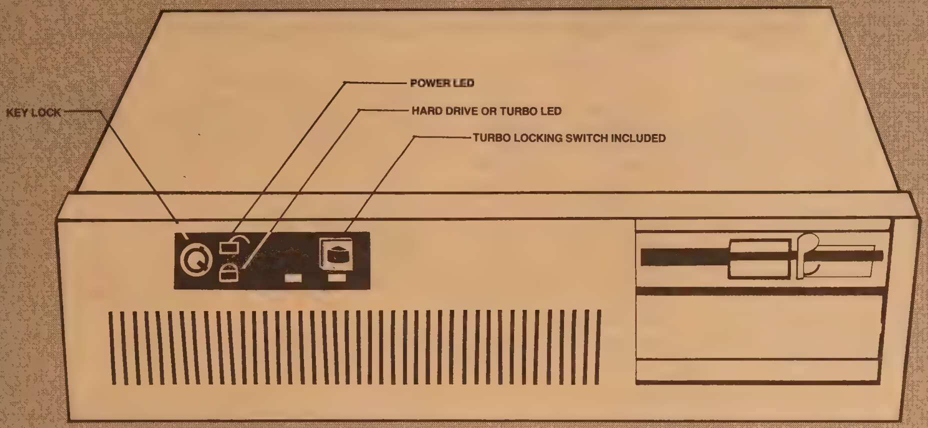

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CORPORATE ACCOUNTS WELCOME

DATA BASE MANAGEMENT

Indexing With dBASE Relations

By Warren Sirota

In this month's column, we will stray from product perusals and return to our occasional examination of *dBASE* programming techniques.

RELATIONS AND INDICES

The *dBASE* command **SET RELATION TO** enables a common field in two files to serve as a connection between them. Let's consider again one of our old standby relational examples: CUSTOMERS and INVOICES, as shown in Figure 1. This is an archetype of the situation where two files are involved in a many-to-one relationship (soap opera, *Days Of Our Files,* to air next season). There may be several invoices for any customer. The two files are tied together by the Customer Code, abbreviated as a field name to CUSTCODE. In order for the relation to work, the Customer file has to be indexed on CUSTCODE.

Figure 1

The INVOICES and CUSTOMER data files, the relation between them (the arrow), and the code to set up that relation.

invoices.dbf

Field Name	Type	Width	Dec
INVNUM	Numeric	5	
INVDATE	Date	8	
INVAMT	Numeric	8	2
CUSTCODE	Character	2	

customer.dbf

Field Name	Type	Width
CUSTCODE	Character	2
CONAME	Character	30

```
* setup.prg
SELECT 1
USE CUSTOMER
INDEX ON CUSTCODE TO CUSTCODE
SELECT 2
USE INVOICES
SET RELATION TO CUSTCODE INTO CUSTOMER
```

Figure 2

Listing invoices ordered by customer name

```
DO SETUP && setup.prg is shown in figure 1
SELECT INVOICES
INDEX ON CUSTOMER → CONAME + STR (INVNUM, 5) TO RPTORDER
LIST CUSTOMER → CONAME, INVNUM, INVDATE, INVAMT
```

Figure 3

An illustration of how the suggested MAINTAIN command might work.

```
SELECT 1
USE CUSTOMER INDEX CUSTCODE
SELECT 2
USE INVOICES INDEX RPTORDER
SET RELATION TO CUSTCODE INTO CUSTOMER
SELECT CUSTOMER
MAINTAIN INVOICES → RPTORDER
* then we can go on to add,
* change or delete records
* in the customer file.
```

This type of relation is very convenient for listing out invoices, because you can have your program issue *dBASE* commands like "**? INVNUM, INVDATE, CUSTOMER → CONAME, CUSTOMER → ADDRESS**" to print out the customer information associated with a particular invoice. Listing invoices ordered by customer company name, however, is a bit trickier, as it involves the use of an index for the INVOICES file that is based upon the CONAME field in the CUSTOMER file. Figure 2 shows a program which will accomplish this.

So far, so good. This procedure works pretty well, but it reindexes the INVOICES file every time it executes. This could take an uncomfortably long time if the file contained several thousand records, and if the listing was an everyday activity (as well it might be—people in the front office might want to see a list of invoices for a particular client, for instance, which would involve the same index considerations). The obvious solution is to try to maintain RPTORDER as a permanent index. This is what you do with normal orderings of files, like the CUSTCODE index for the CUSTOMER file; however, the technique can lead to disaster if used with a multi-file ordering such as this, because these files can be created but not maintained.

In particular, if one were to change the CUSTCODE for a particular invoice (to correct an error) and then to re-issue the **LIST** command, the new ordering that should be maintained in index RPTORDER would not reflect the change. If a company name were to change in the CUSTOMER database (not so unlikely in these days of merger and takeover), even with the relation and index in place as we've done in Figure 1, the index would not be maintained correctly.

This basically means that you can either completely reindex the invoices every time you want a listing or search based upon the CONAME ordering, or you can reindex it whenever changes are made to either the INVOICES or the CUSTOMER files which would affect the accuracy of the indices. You are faced with a trade-off—you can either make your user wait while changing data, or you can make him/her wait while looking for data. Your life as a programmer is simpler if you opt for the latter choice, because you don't have to keep up with changes to the files. When the time comes to report, you just reindex. However, the limited patience of the long-suffering user of your program is likely to be more compelling than your natural desire to keep the program simple. If they use the search and report functions more frequently than the update functions, you must optimize for search and report, triggering reindexing operations on the files when appropriate during the update process instead.

A SUGGESTED SOLUTION

The only solutions to this dilemma can come from Ashton-Tate. Index maintenance needs to be aware of the relational environment. There has to be some way for the programmer to specify that an index such as RPTORDER should be updated as changes are made to the CUSTOMER file.

There are many ways of accomplishing this. One way of doing it would be to add a **MAINTAIN** command, which would be used as shown in Figure 3.

As long as we're fantasizing about *dBASE IV,* though, we may as well go whole hog. The best improvement that could possibly be made to *dBASE* (or to *Clipper, FoxBase,* or any other *dBASE* substitute), would be to add a strong form of the **SET RELATION TO** command. The syntax of the new command must be an extension of the old, for compatibility reasons, so it might be SET RELATION TO **<expression>** INTO **<database name>** **[STRONG]**. One effect of this command might be to allow the maintenance of indices such as RPTORDER. Another could be to prohibit the deletion of CUSTOMER records which had INVOICES pointing to them, or to warn the user that all such INVOICES would be deleted along with the customer record. Additional functions should also be supplied so that the programmer could easily know about cross-references without lengthy searches.

Regardless of whether or not Ashton-Tate chooses to take this unsolicited advice, the techniques of indexing on fields involved in a relation are important to learn for certain common data extraction needs. It is also important to know the pitfalls awaiting the unwary. ☐

Copyright ©1987 by Warren Sirota. All rights reserved. Warren Sirota is a database consultant with experience in a wide range of languages. He also composes and programs computer music. He lives in Oakland and can be reached at (415) 482-3979.

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Capitol Hill And Telecomm:
What The Government's Up To, And How It Affects You

By Brock N. Meeks

Time was, not long ago, that dialing into a remote computer carried with it little responsibility. You simply logged on, looked around, made a few comments and logged off. Then came news of teenage "hackers" worming their way into various remote computers. Suddenly, anyone with a modem was suspect.

A massive education program finally convinced the public that modems could be used for things other than wiping out a bad credit rating and playing global thermonuclear war. The medium's innocence was only slightly tarnished.

Today anyone involved in telecommunications is playing in a hardball league: there is no more room for innocence. Every week, or so it seems, another ruling, proposal, or bill is introduced at the federal level that affects telecommunications in some way. Keeping abreast of the what's happening in the telecommunications world gives you a unique opportunity to have a voice on the eventual direction of the medium. The following items were gathered from a recent round of "federal footwork"; I thought you'd like to know about them.

PACKETGATE: PART II

In an earlier column I outlined a proposal presently before the Federal Communications Commission (FCC) called "Computer Inquiry III." The proposal, if passed, could double the cost you now pay for using commercial information services, such as The WELL or CompuServe.

Adding fuel to the debate over Computer Inquiry III, the Justice Department released a 210-page report on February 2, firing the first salvo in a controversy that may surpass Ma Bell's divestiture itself in terms of high stakes and strongly held views.

The report recommends that U.S. District Judge Harold H. Greene (the presiding judge in the Bell divestiture ruling) get rid of most restrictions placed on the Bell operating companies. The report's timing comes conspicuously close to the FCC's final ruling on Computer Inquiry III.

An official for Telenet, who spoke on the condition his name not be used, said: "The timing of this report's release is obviously a political move. The (Justice) Department is acting like the FCC has already approved Computer III; they're tossing their hat into a ring that doesn't even exist."

The Justice Department is recommending that government "get out of the way" of the telephone industry to create "a more competitive marketplace." The Justice report relies heavily on a 1000-page study prepared by the department's consultant on the matter, Professor Peter Huber. The study, entitled "The Geodesic Network," provides what Justice termed "the factual basis for the recommended changes in the decree restrictions."

Approval by Judge Greene would mean regional firms would be allowed, for the first time, to sell network information services (such as CompuServe), provide long-distance services outside their home territories, and manufacture equipment.

Such a court decision is at least a year away and would follow months of controversial arguments and testimony over the merits of the recommendations.

But other information and long-distance companies that would feel the impact of such increased competition were quick to condemn any relaxation of the rules. An MCI official who wished not to be identified said, "This [recommendation] paves the way for creation of seven new, competitive AT&Ts."

Information services that could be provided under the recommendation include voice mail, voice storage and retrieval similar to services provided by a sophisticated answering machine, and data processing. Under this ruling, the Baby Bells could even support their own commercial online networks, similar to CompuServe, The Source, or The WELL.

COMPUTER RADIO BOOST

"The ruling nobody heard," or so it would seem, recently came out of the FCC. The ruling could make packet radio the "next wave" in microcomputer communications.

Packet radio, as you may recall, is a technology born from the union of amateur radio and computers. Instead of using a telephone line to send digitized computer text (or binary data), a packet radio rig sends and receives over the public airwaves—free of charge.

A snag in the widespread acceptance of packet radio is that to operate a packet radio set-up you need an advanced amateur radio operator's license. To acquire such a license requires that you be tested on some fairly technical knowledge and prove that you have a more than casual proficiency in Morse code. In other words, you have to "pay some dues" before getting on the airwaves with packet radio.

This system of allowing only higher-class license holders to enjoy packet radio is arcane and serves no justifiable purpose. The present system simply makes the airwaves less crowded—an environment relished by old time amateur radio operators ("hams"), to the exclusion of possibly tens of thousands of potential packet radio users. However, the FCC's new ruling changes all that.

The FCC ruling gives Novice-class hams the authority to operate digital radio signals. The Novice class is on the bottom rung of the five-level amateur licensing ladder. The two-tier examination the government requires prospective Novices to pass consists of relatively easy technical and Morse code tests. (Eight-year-olds have been known to pass the exams after only a few days of study.) Hams holding higher-class licenses have already established elaborate interstate and worldwide packet radio bulletin boards.

IMPROVED POLICY

Representative Cardiss Collins (D-Ill) has introduced the Telecommunications Policy Coordination Act of 1987 (HR 323) into the House side of Congress. The bill is an attempt to improve the communication and decision-making process among the various agencies in the Administration's Executive branch when it comes to formulating telecommunications policy.

Rep. Collins' bill would help cut through the current bureaucratic complexity, which tends to hinder new developments. If passed, the bill would call for the establishment of an Office of Telecommunications Policy. This office would be under the wing of the Executive Office of the President.

The bill gives the office a mandate to keep abreast of telecommunications policy options and new developments in the field, and advise the President accordingly. The office would also settle disputes between government agencies seeking to implement new—and all too often conflicting—telecommunications policies.

Observing the industry, the new office would study new telecommunications technologies and report on the possible effects to existing facilities, services and systems. It would then make recommendations, in the form of reports, to the White House and Congress, on whether the new technologies should be integrated at the federal level. The office would also report on the effect new telecommunications technologies would have on the national economy.

The bill is currently making its round of subcommittee hearings in the House Committee on Energy and Commerce.

DROP CARRIER

Following legislation isn't the most exciting aspect of telecommunications, but it is a vital one. The industry is being shaped by these types of decisions. The opportunity to play a part in the future of the medium is one I don't want to pass up. Do you? □

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Brock Meeks is a San Diego-based freelance writer.

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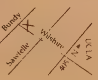

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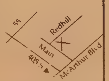

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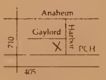

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Aegis Animator:

A New Twist On The Mouse-To-Animator Relationship

By Helmi Kobler

Every once in a while a piece of software is released that even the most meticulous, nit-picking critic finds hard to fault. The product is sharp, well-thought-out, and reeks of professionalism. It incites ooohs and ahhhs as it's demoed on a dealer's floor, and doesn't become stale or dull with a few days of use. This is the case with Aegis Development's *Aegis Animator*, a rather new $79.95 package that should be on every sane ST dealers' shelves by now.

Though it's not the first animation program the ST has seen, *Aegis Animator* is a groundbreaker in that it's the first package that can be used to create complex and involved animation routines with a few drags and clicks of the mouse. Running in the ST's 16 color low resolution mode, *Animator* not only lets you design simple animations, such as moving a polygon from point A to point B, but also makes available a slew of other advanced effects. You can rotate that polygon or spin it on its X or Y axis. You can shrink or enlarge it as much as you like. You can change its color, its shape and even define the speed at which it moves.

Besides animating the polygons, circles, stars and blocks created with the program's graphics editor, you can also capture and animate segments of pictures, called "cels" in *Animator* lingo, made with Atari or other compatible software. This is extremely useful when you'd like to work with multi-colored, finely detailed objects that can't be created without a full-featured paint program. Imported cels, however, are limited only to basic from-here-to-there animation. For instance, *Animator* can't spin a *NEO*-drawn bird on its X or Y axis, rotate it in a circle and finally transform it into a sleek jet fighter. This is possible, but you have to create a good number of cels, each depicting the bird in a slightly different position, and then use *Animator* to play them back one by one for the desired effect. This takes some time, of course, but allows for complex and detailed animations that couldn't be accomplished with just a few blocks, triangles and circles.

Complete *NEOchrome* pictures can also be loaded into *Animator* for use as "backdrop" scenes that reside behind animations, much like matte paintings are used in movies. Backdrops may even be animated through color cycling.

Animation sequences, called scripts, are based on a concept known as "tweening." Tweens are short segments of time in which acts of a script are performed. Tweens allow animations to be broken down into pieces and designed step-by-step. They're produced one at a time and then shown together in the animation script. As a simple example, in creating your animations you could paint a triangle in tween one, rotate it in tween two, move it to the left in tween three and finally shrink it into oblivion in tween four. When the entire script is played, each tween would be shown in progressive order.

Animator also provides a storyboard feature for editing your animation scripts. More like a film editor, it lets you work with up to six scripts simultaneously. Each script is placed in a separate window where unwanted tweens can be cut out, entire animations may be spliced together or completely destroyed. This is really useful for polishing up your final product.

Looking over this brief review, I realize that I can't fully explain Aegis *Animator* in a few hundred words. It's a very deep program that takes a lot of time to explore and even more to explain. But in short, it's an extremely powerful and flexible program that can bring just about any graphics image to animated life. Use it to storyboard video game ideas, create product demos or animate advertisements. Or, just sit up all night with it and design cosmic animations that are sure to amaze your friends. My own applications have included using it to create animated advertisements for a user group I belong to.

In any case, *Animator* is a real winner, and probably not the last we'll see from Aegis Development. The company is working on a number of additional ST titles that should be released by early summer. Look for *Art Pak ST*, a collection of professional art compatible with *Aegis Animator*, *Arazok's Tomb*, a graphics adventure game, *Aegis Speed Speller*, and Doug Clapp's *Word Tools*. If you'd like to get in touch with Aegis, write them at 2115 Pico Boulevard, Santa Monica, CA 90405.

OTHER NEW SOFTWARE

Some other worthwhile software has come my way lately. One title is *Word Writer ST*, a competent word processor from Timeworks, Inc. (444 Lake Cook Road, Deerfield, Illinois 60015). Timeworks is a big productivity software developer that has recently started to support the ST. Besides its word processor, the company has also released a spreadsheet called *SwiftCalc ST*, a database, *Data Manager ST*, and Sylvia Porter's *Swiftax*, a program that helps prepare federal income tax returns.

At first glance, the non-copy protected *Word Writer* seems to resemble Atari's well-known *1st-Word* software. It's GEM-based and compatible with *1st-Word* documents, but goes on to correct many of *1st-Word's* shortcomings. Besides the basics you'd expect such as What-You-See-Is-What-You-Get document display, multiple windows, on-screen text styles (italics, bold, etc.), headers and footers, easy editing and cut and paste capabilities, *Word Writer* throws in welcomed major features such as an integrated five-level outliner and a 90,000-word dictionary. The program can spell check documents once they're completed or in real time, as you type. Although the program is very complete, it's unfortunate that new words can not be added to the existing dictionary.

Other minor enhancements are the ability to format text throughout an entire document instead of by paragraph alone (*1st-Word* users can appreciate this), keyboard alternatives for all major functions and a status feature that gives page, line, word, character and free memory counts of documents.

Word Writer doesn't sport all the bells and whistles other soon-to-come ST word processors are expected to have. For instance, graphics can't be incorporated into documents, multiple columns can't be created and GDOS is not supported, meaning multi-font documents are out of the question.

But the program is nonetheless a workhorse, and does what it's equipped to do well. Also, Timeworks has revisions in the works which will add user-expandable dictionaries and a 60,000 word-integrated thesaurus. This new release is expected in a couple of months, with a GDOS version to follow later on. If you're interested future *Word Writer* versions, there's little reason to hold back on the current software. Timeworks has a very reasonable update policy where they'll supply registered owners with updates, including new disks and manuals, for around $30 or less, depending on the extent of new features. But for $79.95 retail, the current *Word Writer ST* is a good deal anyway.

As a parting note, I have some "coming soon for the ST" news. Brøderbund, one of the biggest names in the entertainment software business, is bringing its *Print Shop* software over to the ST for summer release. The company is also working on other ST titles, but wasn't willing to give me any specific names. I'm hoping, though, that one might be *The Ancient Art Of War*. In any case, an ST version of *Print Shop* is great cause for celebration because it represents the ST's acceptance by yet another accomplished company.

And speaking of accomplished companies, Microsoft Corp. seems to be eyeing the ST a bit lately. It's common knowledge that Microsoft is working with Atari on an ST version of Microsoft *Word*, but did you know that there are plans for an ST port-over of *Excel*, Microsoft's hit Macintosh spreadsheet? Perhaps even an ST version Microsoft *Works*, an integrated application that includes word processing, database, spreadsheet and telecommunications functions. Although this might seem to be the product of an overactive imagination, this information comes from a reliable and experienced source. It probably won't be verifiable for a while yet, but keep it in mind. ☐

Helmi Kobler took his first step into the computer world in 1983 when he walked out of Macy's with an Atari 800 in his arms. Still an Atari user, he's now inseparably attached to his ST. He can be reached through MicroTimes *or e-mail <helmi> on The WELL at (415) 332-6106.*

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TIME MANAGEMENT

SUM:TIME

Published by: *Sumware*
For: *IBM PC, XT, AT, or compatible, 256K RAM, single 360K diskette drive, PC/MS-DOS 2.0 or greater. Mouse optional.*
Price: *$89.95*
Reviewed by: *Jim Switzer*

Are you a small businessperson who just can't seem to keep track of your sales or marketing reps? Does your secretary schedule meetings that conflict with other appointments? Do you want to do something about these problems, but not want to spend a lot of money for fancy, name-brand computer software? *SUM:TIME—A Timely Organizer* can help.

SUM:TIME is an integrated time management program that can do more than just manage your time. The program features four major functions: Time Manager, Letter Writer, FileDex, and Terminal. The Time Manager gives you the ability to keep track of up to 32 individual calendars, as well as integrate them into a master calendar. You can schedule appointments and meetings, keep track of total hours booked, etc. The calendars let you keep tabs on the Whos, Wheres, and Whys of time management.

The Letter Writer is a word processing program that can double as an electric typewriter, if you so desire. Features include word wrap, mail merge capability, and cut and paste. The FileDex function is similar to an electronic Rolodex, with the capabilities of a small database management system. The FileDex allows you to define up to eight data fields for whatever you wish. It also has five pre-defined fields for mailings. This function will allow you to capture data and merge it into a document created with the Letter Writer for individualized form letters.

The program also features an auto-dial function to allow you to phone a person within the database using your Hayes-compatible modem. The Terminal function gives you the ability to communicate with other computers or time-sharing services as a VT100 terminal. You can modify baud rate, COM ports, parity, etc., for complete communications control. The program also gives you the ability to resize and move any of the four function "windows." The program also offers support for either the Microsoft or Mouse Systems Mouse, for easier maneuverability through the program.

SUM:TIME offers very helpful, practical features. While in the Time Manager, you can set up individual calendars for your employees so you can keep track of their appointments as they relate to your overall business. The master calendar will display the number of morning and afternoon appointments in the right-hand side of a given date on the calendar. You can create an entry for a meeting, which will, in turn, block that time on the calendars of those who need to attend the meeting. You can quickly get an idea of the total number of hours booked for a given week or month by just pressing two keys.

No need to worry about overlapping appointments—*SUM:TIME* will display and allow you to adjust them quickly and easily. The Letter Writer function gives you the added ability to create letters, memos, and documents just as easily as you type. The function also gives you the ability to type-through directly to your printer by character or by line, whichever you prefer.

The FileDex portion works fairly well. You can create different database files to meet your needs—maybe one for clients, another for suppliers, and so on. Each can have up to eight data fields which you assign, so they don't all have to be the same. The Terminal function operates as an ASCII serial terminal. You can communicate with other microcomputers as well as on-line services such as GEnie.

SUM:TIME is very easy to use. The program makes extensive use of the IBM's function keys, so you don't have to remember any complex command sequences. The commands associated with the function keys are displayed on the top of the screen. Just press the function key and a pull-down menu appears with the available selections. Move the highlight bar to the command/selection you want and press RETURN. It can't get much easier than this. The program has a "suspend" feature which allows you to temporarily exit from one function and begin another. This is executed by pressing the F7 key. The program will notify you that it is updating the suspended file and then ask you to press the function key that relates to the next function you wish to execute. This allows you to "hop" between two or more of *SUM:TIME*'s four functions easily and quickly—almost like having four memory-resident programs.

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SUM:TIME's error handling is only fair. Like a lot of other "smaller" companies, Sumware neglected to trap for a printer on/off condition. In the case of *SUM:TIME*, DOS intercepts the error—not a big problem in itself, but annoying. I encountered another error during the setting up of a FileDex file. The program discovered an error that I had made about halfway through the creation of the file and told me so. However, when I responded to the prompt the program immediately returned me to the beginning of the FileDex function, losing all of my data!

SUM:TIME requires no special installation procedure. Just copy the files to your hard disk or make backup copies to suit your needs. For your convenience, the program is not copy-protected.

SUM:TIME is just about the only package that a small-to-medium sized company would need for day-to-day scheduling and making business contacts. The only other software package that you might need is a spreadsheet. At $89.95, you can't beat the value. And for you with larger businesses, Sumware offers a LAN-based *SUM:TIME* starting at $189.95! (Sumware, Inc., 23121 Verdugo Drive, Suite #101, Laguna Hills, CA 92653-1339, 714/855-3062.)

WORD PROCESSORS

Multiscribe Version 1.10

Published by: *StyleWare*
For: *Apple IIe, IIc*
Price: *$59.95*
Reviewed by: *Conrad D. Cox*

Ever wish you could trade your Apple IIe or IIc for a new Macintosh? Do you crave the ability to change the look of your documents from dull, 12 pitch Pica to something more exotic, more flamboyant?

MultiScribe allows you to produce documents printed with the distinctive flair of enhanced fonts and styles. Additional fonts of the user's own design can be employed. Moreover, *MultiScribe* offers the look and feel of the Macintosh, without the expense of upgrading your present IIe or IIc.

MultiScribe operates with or without a mouse. To those who are familiar with the Macintosh, *MultiScribe* with the mouse will feel like an old friend. Pull-down menus from the menu bar, dialog boxes, and the scroll bar on the right side of the display screen add to the illusion.

For those who would rather go mouseless, *MultiScribe* uses the arrow keys, the OPEN-APPLE and SOLID-APPLE keys in conjunction with alphanumerics to move the cursor within the document and directly access the many functions of the program. *MultiScribe* also allows the user to pull down and make selections from the menu bar using keystrokes in lieu of a mouse.

MultiScribe has most of the word processing features you would expect from a word processor in this price range. It performs cut and paste operations on a word, part of a line, or whole paragraphs. A "clipboard" disk file is used to hold the cut. On the minus side, this disk access slows down the procedure. On the plus side, you can put frequently needed text on the clipboard and insert it as needed anywhere in the text.

Other word processing features include a search and replace function, "what you see is what you get" display, centering, left and right justification, and the choice of forced or automatic page breaks. *MultiScribe* can paginate documents automatically. For longer documents, files can be chained together to print as if they were one continuous document.

The ability to display and print text in a variety of fonts and type styles makes *MultiScribe* more than just a text editor. The ten fonts included in the program are named after various writers: Hemingway, Milton, Dante, and Mark Twain, to name a few. The fonts range in appearance from Elizabethan script to space age lettering. There is even a font named Michelangelo, comprised completely of pictures.

MultiScribe's fonts may be further altered by the user. Text can be underlined, printed and displayed in bold, shadow and outline styles. Text can also be italicized and printed in superscript or subscript. Even the size of the text can be enlarged in 50% increments up to three times normal size. Each font is shown in the monitor screen exactly as it will appear on the printed page.

MultiScribe contains a font editor program that allows the user to make modifications to the existing fonts to suit individual requirements. New fonts can even be designed from scratch.

MultiScribe is packaged on two sides of a single 5¼" diskette. Because the program is not copy protected, it may be backed up to a 5¼" or 3.5" disk or installed on a hard disk without difficulty. The program also recognizes and can be installed on extended memory cards. The user's guide provides a BASIC program to automatically load the program and fonts into Apple, Applied Engineering and Checkmate Technology extended memory cards. *MultiScribe* operates under the ProDOS operating system, offering full pathname support.

As I booted *MultiScribe* I was surprised to see my green IIc monitor take on the distinctive appearance of the Macintosh. Instinctively I reached for the mouse and began to drag, click and pull down everything in sight. I am not very

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proficient on the Mac, but I became comfortable with the interface at once.

The second thing I noticed about *MultiScribe* was the number of disk accesses necessary to do everything. Unless the program is installed on a hard disk or RAM card, editing will be a bit slow. Even moving text requires writing the text to disk.

The single disk user will require an extra measure of patience, as the *MultiScribe* program disk must remain in a drive at all times. (Again, a RAM card can be a real time saver.) If you are in the habit of saving your work at regular intervals, be ready for some disk swapping.

Because of these shortcomings, and because the program does not support headers, footers, footnotes, or glossaries, *MultiScribe* can't be called a full-feature word processor. That doesn't mean it isn't a useful tool. For documents where page layout isn't critical (letters, informal correspondence), *MultiScribe* can create documents fairly well. Longer documents created on ASCII word processors can be loaded into *MultiScribe* and "dressed up." Files as long as 29K may be loaded into the program.

MultiScribe is very easy to learn and operate. Users already familiar with the operation of a mouse will have no trouble operating the program. Even without a mouse, *MultiScribe's* menu bar provides menu-driven convenience for the new user. As proficiency increases, the user may decide to use the OPEN- and SOLID-APPLE command sequences to quickly evoke program commands.

The *MultiScribe* user's guide is well thought out, divided into two major sections—the *MultiScribe* area and the font editor area. Separate reference sections are provided for each area. The guide also contains tutorials which guide the user through enough exercises to get a beginning sense of the program. It is well indexed and contains an extensive table of contents.

The manual doesn't assume that *MultiScribe* will be used with a mouse. Instead, it provides instructions for both interfaces at the same time. While I found this aspect of the user's guide a bit cluttered at first, I quickly became used to it and was able to pick out the instructions I required while skipping the parts that didn't interest me.

The program requires an Apple IIc or IIe with an extended 80 column card. More than a dozen printers—Epson, Star Micronics, Okidata, to name a few—and more than 40 printer interfaces are supported. As this review was being prepared, StyleWare announced the introduction of version 1.11, increasing the program's hardware compatibility even further.

StyleWare offers a non toll free phone number during normal business hours for technical support. The user's guide clearly states that no warranty is made as to the "quality, performance, merchantability, or fitness for any particular purpose" of the software. Quite a strong position of disassociation! However, the questions I had about the software were answered politely and quickly when I called the support phone number. Nonetheless, I would be sure your program disk is backed up, just in case. (StyleWare, Inc., 6405 Hillcroft, Suite 201, Houston, TX 77081, 713/668-0759, $59.95.

A-Plus

Published by: *Savant Corporation*
For: *IBM PC, XT, AT and compatibles. Requires Color Graphics or Enhanced Color Graphics board, minimum 256K RAM, PC/MS-DOS 2.0 or higher, at least one disk drive, and graphics printer for printed output.*
Price: *$89.95*
Reviewed by: *Jim Switzer*

A-Plus combines a word processor with a graphics drawing package for integrated text and graphic

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Calendar of Events

- March 25, Wednesday, 7:30 p.m.—"Introduction to Music Synthesis" a five week course taught by Adam Rado begins. Classes are scheduled on consecutive Wednesday nights and may be taken individually.
- April 7, Tuesday, 7 p.m.—"The Complete Synthesist," a six week course taught by the much heralded Malcolm Cecil begins and is for anyone who wants to stay in touch with the exciting developments in today's MIDI technology.
- April 9, Thursday, 7:30 p.m.—FREE IBM Users Group meeting featuring Voyetra's Tony Mayo. Everyone Welcome. It's FREE!

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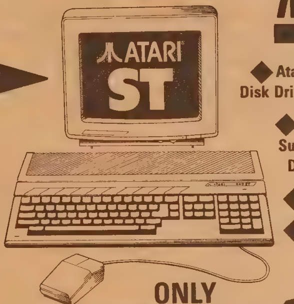

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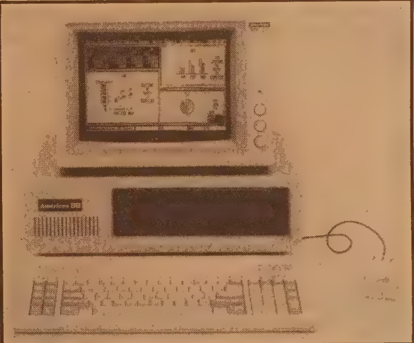

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Calendar of Events

- April 16, Thursday, 7:30 p.m.—Oberheim Party! We invite you to join us to celebrate the exciting line of Oberheim products we stock and meet the MIDIOTS from Oberheim in person. FREE
- April 23, Thursday, 7:30 p.m.—Atari Users Group meeting with Charles Faris of Compumates and Geoff Ryle of Steinberg. FREE
- April 27, Monday, 7:30 p.m.—Macintosh Master Class in Mark of the Unicorn's Performer software. This six week course taught by Grammy nominated Ed Freeman meets consecutive Mondays.
- April 30, Thursday, 7:30 p.m.—Amiga Users Group meeting moderated by MIDI City's own David Kopatz. FREE
- May 14, Thursday, 7:30 p.m.—FREE Fostex Signal Processing Seminar featuring everything you ever wanted to know about MIDI, signal processing, and MORE. Presented by Fostex ace product specialist Tom Lubin.

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In The June Issue Of MicroTimes

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EDITORIAL CONTENT
The June issue of MicroTimes will feature major editorial on Lotus Development's spreadsheet 1-2-3™ and its line of business software.

This targeted editorial will also focus on the role of third party developers who offer user enhancements, vertical market applications, and support services for the rapidly growing 1-2-3™ after market.

And we'll bring you an up to the minute report on Lotus' litigation concerning copyright infringement in the "Look and Feel" Debate.

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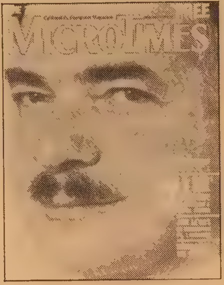
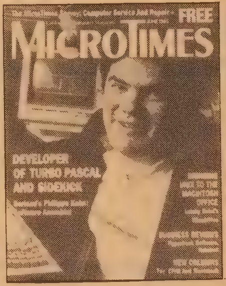
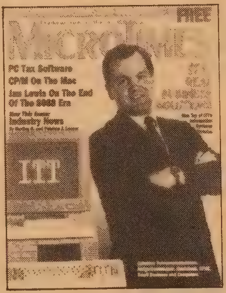






MICROTIMES CLASSIFIEDS WORK!

documents. While it's designed as an educational package for junior high, high school and college-level students, it's not just for the kids.

The program features an easy-to-use graphic menu system. It includes a "what you see is what you get" word processor with on-screen bolding, underlining, and italics. The word processor supports and displays the character sets of such foreign languages as German, Spanish, Greek, French, and Italian. The *A-Plus* word processor also lets you import/export ASCII files from other word processors, so you don't have to re-key old work.

The *A-Plus* drawing program features four-color drawing, creation of boxes, circles, triangles, and other geometric shapes. These drawings may be saved and included into your word processing files for a graphically oriented document.

A-Plus also provides a set of easy-to-use utilities to create, move, copy, and erase files and/or disks. The program supports 18 printers ranging from dot-matrix to ink jet, and can produce near-letter-quality documents on printers that support this output.

A-Plus is copy-protected, but the package includes instructions for installing the program, and the procedure works well. Using this procedure, you can place the *A-Plus* package on a floppy or hard disk-based system for backups and execution. Start the installation by placing the distribution diskette into Drive A, typing INSTALL and pressing RETURN. The installation program will then ask you whether this is your first installation. If so, you then select "where" you wish *A-Plus* to be located. The program then copies the files to the applicable location. You are then given the ability to "set up" your printer, work drive, graphic display type, and color of the screen. If you have already installed *A-Plus*, you may modify your "setup" by using this same installation procedure and responding "NO" to the first-time question.

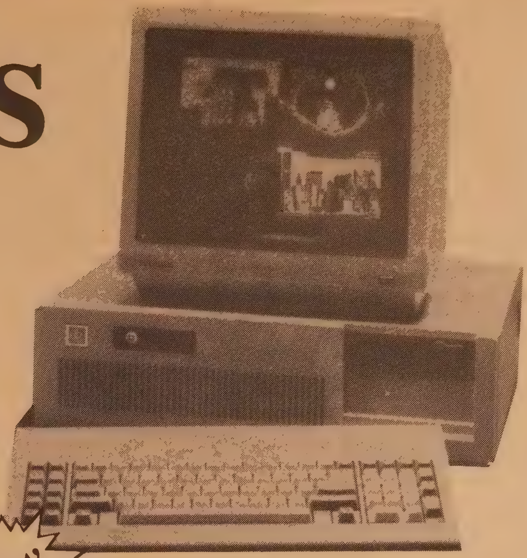
A-Plus performs very well, letting you move from word processing to drawing to utilities with tremendous ease. The word processor sports menus at the bottom of the screen at a touch of a key. These menus let you choose language sets, include drawings, change the typeface you are presently working with, and perform many other functions that help you create your document.

The drawing portion works similarly to ZSoft's *PC Paintbrush*. You can draw circles, boxes, rectangles, and other objects by choosing from the "palette" of tools on the left-hand side of the screen. Once you have finished your drawing, save it to disk for later use with the A-Draw portion of *A-Plus* or include it in one of your A-Write documents.

The *A-Plus* utility performs just as well. It allows you to copy, delete, or move files from one location to another. The utility section also lets you import/export ASCII text files from other word processors. The only problem with the performance of the package is the printer interface. At review time, the program only supported 18 printers, most of which have some quirks that won't allow you to print certain things (such as superscript/subscript, foreign language characters, etc.). I happen to have a printer that didn't seem to want to print graphics, as well as certain characters. When I called in about this problem, Savant's support proved outstanding.

A-Plus is very easy to use. The program features a graphically oriented menu; first, choose whether you want to work in A-Write or A-Draw. This is done by choosing the proper icon and pressing RETURN. *A-Plus* organizes material in "Binders," much as a student would with class work. These binders are shown on the right-hand side of the screen with their bindings facing outward, with the appropriate title on each. To select a binder, you move the reverse-video highlight to the binder you want and press RETURN. A hand will appear

Monitors Worth Looking At



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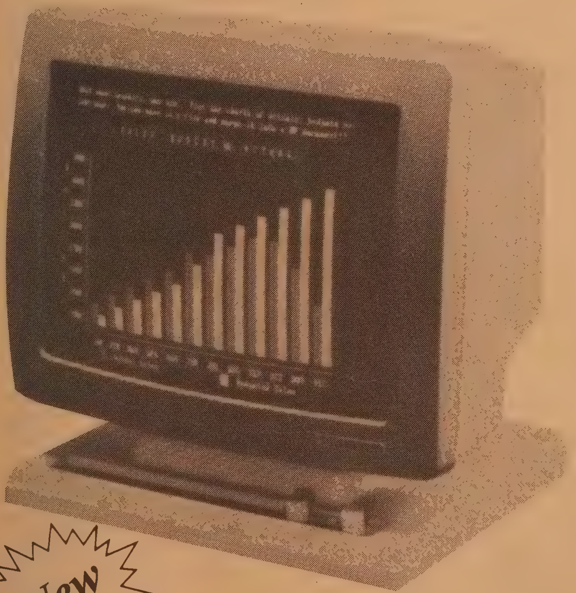

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on the screen and pull the binder aside. The contents of the binder will then be displayed in the middle of the screen as "file folders" within the binder. As before, to select a file folder, move the highlight to your choice and press RETURN. A paper clip will signify that the file is currently selected for working. At this point, you may either modify the document/drawing or print it by choosing the proper icon. If you choose to work with A-Write, once you've entered the document mode you can access help menus by pressing the ESC key. You may choose your command from these menus or by pressing the CTRL key and the appropriate letter for the command.

The A-Draw portion of the *A-Plus* package is just as easy to use. Just choose your "tool" from the icon menu on the left-hand side of the screen, position the cross-hair cursor to the point on the screen where you wish to start, press RETURN, create your image, and press RETURN when you're done. To get back to the menu, press the ESC key. The utilities are just as easy. The nice thing about *A-Plus* is that you don't have to know anything about DOS or file naming limitations that are inherent with it. *A-Plus* allows you to name files and binders with up to 20 characters each.

A-Plus handles errors very well. The program intercepts errors from disk drives and printers, and presents them in plain and simple terms so that you can understand what the problem is.

The documentation for *A-Plus* consists of a 310-page, three-ring binder divided into four separate areas: a general overview of *A-Plus*, then individual sections on A-Write, Utilities, and A-Draw. Each of these areas is easy to understand and very well organized. The documentation provides appendices that explain the installation of the *A-Plus* software and list the printers *A-Plus* supports, along with hints for dealing with their individual quirks.

A-Plus is designed to run on the IBM PC family of computers or compatibles. The program was tested on an IBM PC/XT with 640K RAM and an Epson MX-80 with Graftrax. If you have any questions regarding whether or not it will run on your equipment, contact Savant at the number below.

Technical support is great! The people at Savant really go out of their way to help solve your problems. I had a problem with my printer not being able to handle graphics generated by the *A-Plus* program. After I talked to the technical support person, the problem was diagnosed as an incompatible printer driver (the one distributed is for the Graftrax Plus). The tech support person asked me for applicable function codes for my printer, then proceeded to ship me, free of charge, a new printer driver to support my printer! Now the only thing that my printer won't handle (and never will due to the model) is superscript and subscript processing. The only drawback with the support area is that the number is *not* toll-free.

A-Plus is definitely worth looking at. If you need a word processor that can incorporate graphics, this package is unbeatable at the price. (Savant Corporation, P.O. Box 1077, Waltham, MA. 02254, 617/891-0638.)

GRAPHICS SOFTWARE

Fullpaint

Published by: *Ann Arbor Softworks*
For: *Macintosh 512K or Macintosh Plus*
Suggested Retail: *$99.95*
Reviewed by: *Janet Hensley*

It's not unusual to for Mac users to find that *MacPaint* doesn't quite do all the things they'd like it to. Until now, the solution was to add desk accessories and other program add-ons, piecing together art tools as best you could. *FullPaint* offers a considerably more streamlined option than that "patchwork" disk.

FullPaint offers all the features of *MacPaint*, as well as Skew, Free Rotate, Distort, and Perspective. Skew allows an image to be slanted left or right, which might be used in conjunction with Copy and Flip Vertical to create a shadow. Free Rotate allows a selected image to be rotated in one-degree increments. No longer are you limited to straight up and down or sideways. Perspective creates a symmetrically opposed distortion—pull the left bottom corner out and the right bottom corner automatically adjusts to match, as if you were using the mirrors tool. Distort is your chance to get wild—select any object and treat it like silly putty. Stretch one corner out, move another in.

Almost every function or menu selection (such as Grid or Fatbits) now has its own command key, saving you a lot of time. However, probably the best feature is being able to have four windows open at a time, so you can work in four file windows simultaneously. The four screens don't necessarily have to be used for four files, though. How about using one window for the file being created, and another one or two as scratch areas—places to put individual pieces together with lots of elbow room? When ready, simply copy the completed object and paste it to its final location.

Another new feature is the ability to choose one of three different types of screens to work in: a regular *MacPaint*-like screen, with added scroll-bars, a full-display with no menu bar. If none of these screen options allows you to select a large object which extends past the displayed area, don't worry. The selection marquee will scroll, allowing you to copy a tall tree or a long fire engine.

Also available are the built-in Rulers, Mouse-Crawl and MouseSpot, which shows where your mouse is on the screen according to the variable unit rulers (inches, centimeters, picas), and allows the cursor to be moved one pixel at a time quite easily. Another new feature is the choice of one custom Font size, which can be changed at any time. You will have to do some cleaning up in FatBits if you decide to use this, but if you need to have a 99 point font, no problem.

Two utility programs are included in the *Full-Paint* package, LazerPrint and ColorPrint. Lazer-Print allows you to enlarge files up to 400% and to split the document into multiple parts to enhance the picture, allowing it to take advantage of the 300 dots per inch resolution of the Laser-Writer.

The ColorPrint program works with both *Mac-Paint/FullPaint* files and *MacDraw* files. Color-Print uses the standard color separation technique, which involves creating a separate file for each color to be in the completed picture. Each individual color overlay file has only those elements in it which correspond to it. In the example supplied with the disk (a rose), there are three colors: red, green and black. The red file contains the rose itself, the green file contains the stem and leaves, and the black file has the outlines of the complete rose for enhancing contrast. If you have the original ImageWriter, the program will prompt you through the color ribbon changes. If, however, you have a Scribe or an ImageWriter II, simply change to the multicolored ribbon appropriate for your printer and it will print all the colors in one pass.

FullPaint's installation is simple: copy the program files to any diskette or hard disk. When the copy is done, click on the *FullPaint* icon and you're ready to work. For Color Print, installation is as difficult as putting on color ribbon on your printer for switching colors. This lack of copy protection is a commendable new feature.

FullPaint is just as easy to use as *MacPaint*, and, in some cases, easier. The short cuts display is especially helpful, as there may be more than one short cut for a particular function. The most important consideration is that the *FullPaint* tools, menus and commands are designed to be instantly familiar to long-time *MacPaint* users.

FullPaint is an excellent program from a company which obviously makes an effort to support its customers through constant improvements to an already excellent product. (Ann Arbor Softworks, 2393 Teller Road, Suite 106, Newbury Park, CA 91320, 805/375-1467.)

Graphics Integrator 2

Published by: *Inkwell Systems*
For: *Commodore 64/128*
List Price: *$29.95*
Reviewed by: *Sue Albert*

Since the first caveperson pulled a burnt stick out of the fire and drew on a cave wall, artists have found the natural way to draw was with the tool held in the fingers and placed directly on a surface. For the Commodore 64/128, the Flexidraw Light-pen, by Inkwell Systems, is this sensitive tool with it's rock solid, full featured drawing program and industrial quality pen.

It's been puzzling why more developers haven't included drivers for Flexidraw in their graphics packages. Now Inkwell has come up with a next-best solution that benefits all graphics users. The *Graphics Integrator 2* program, with five program modules, is a format converter that allows interchange between a wide variety of graphics and several word processing programs. It is compatible with most printers/interfaces and uses the pen or keyboard for input.

You can convert in any direction. Hi-Res to Hi-Res, Hi-Res to Multi-Color, Multi-Color to Hi-Res, Multi to Multi. Get the picture? You can quickly and effortlessly convert a Hi-Res drawing, to *Print Shop*, *Print Master* or *Newsroom* graphic icon, with no loss of resolution. Say "Good-bye" to tedious drawing options. Cheer as you easily drop your graphics into GEOS or Paperclip. Convert *Computereyes*, *Cadpak 64*, *Billboard Maker*, *Doodle*, *Koala* and more!

Easy to use? Good golly yes! The well organized manual demystifies complex concepts by illustrating each screen choice and procedure, a friendly tutor even we right-brain types can appreciate.

The self-running Slide Show feature alone is worth the price of the disk. It offers three dissolves with options to use one style, rotate at random or sequentially, and change at any time ... great potential for business or teaching presentations.

Picture Printer allows printing of files converted to Flexidraw in two sizes and several page placements, even side-by-side. Color printer drivers can be loaded separately.

There is an unavoidable down side to all this creative choice. Color can be lost or changed in converting Multicolor to Hi-res, Hi-Res to Graphic or Multicolor to Graphic. When converting Hi-Res or Graphic to Multicolor, horizontal lines thicken.

Graphics Integrator 2 isn't flawless. I would wish for access to data disk directories, with block size, and formatting of disks from within all program modules. Too few "go-backs" cause a "you can't get there from here" response. The program appears to crash if improper data disks are inserted for Slide Show (resurrect with a few returns). The program directory cycles endlessly, a real crash, if left in the drive when some data disk directories are requested.

Despite a few warts, I highly recommend *Graphics Integrator 2* as the most sophisticated conversion program I've tried. It helps squeeze the best out of those 64-wonderful-k's. (Inkwell Systems, PO Box 85152 MB290, San Diego, CA 92138.)

USER GROUP NETWORK

By Mary Eisenhart

Once again, updates and info. We received a letter this month from **Doug Trueman,** late of the **Franklin User Group.** It seems that there've been a few changes in Apple-clone Land, and the Franklin group has now been absorbed into a national Apple users' group, the **Big Red Apple Club**.

Says Doug, "Big Red Apple Club is a national Apple user group with over 10,000 members. We provide a monthly newsletter, the *Scarlett,* which supports users of all Apple computers, including the IIGS, Laser 128, Franklin 2000 series and Apple CP/M. We also offer commercial and public domain software at a discount. A catalog is sent to all members. Membership is $12 a year. Orders should be sent to Big Red Apple Club, 423 Norfolk Ave., Norfolk, NE 68701, (402) 379-4680." So check it out, whether you've got an official Apple or a not-so-official one.

Mail from **The WELL: L.M. Klungness** writes "I think it is about time we got listed in your *MicroTimes* column"—a reasonable enough suggestion. He continues, "We are **Microenvironmental Information Consortium for Researchers Overseas.** We have branches in Washington State, Albany CA, and Colombia. Our objective is to use the electronic media to provide better access to information about the environment, both in the USA and overseas. We are not all technical, but we do try to use only the best documented and factual information we can find." He adds that MICRO is "dedicated to improving the use of computer communications to defend against environmental and social injustice." If this sounds like your kind of organization, you can call MICRO at (415) 524-9309 or (206) 262-0159. You can also write to MICRO, 712 Avery Rd. W., Winlock, WA 98596.

Also on The WELL, **Ari Davidow** sends along this update on the Hebrew Users Group, mentioned last issue: "The group publishes a quarterly newsletter and supports (so far, at least) people using CP/M, MS-DOS-type computers, and Macs, wherever they fit in. **Jack Love** (who's in charge of the club) is hoping to get an actual users' group meeting happening soon. Dues are $7.50/year ($10 overseas), checks to be make payable to Berkeley Hillel Foundation." For info, call Jack Love at (415) 845-7793.

Speaking of **The WELL,** the **MicroTimes conference** thereon is currently hosting a couple of interesting discussions you modemers might want to get involved in. One is a discussion of the present and future state of the CP/M world, what CP/M users are using their systems for, what they need, and what we, as a magazine, ought to be doing about it. A somewhat more philosophical discussion has to do with the Now What? aspect of the personal computer revolution—is the individual user being squeezed out as erstwhile hackers and hobbyists start going for the corporate gold? Anyway, WELLbeings are cordially invited to join the discussion; nonWELLbeings are invited to either become WELL denizens or to send us your comments on these and other issues via US Mail. The WELL can be accessed at (415) 332-6106 or (415) 848-0841 (East Bay); for further info call its voice number (415) 332-4335.

Larry Bouchez of Lawndale is looking for an **NEC** user group in the South Bay area in Southern Cal. If you know of one, or are similarly inclined, write to Larry at P.O. Box 183, Lawndale, CA 90260.

Tom Sutro of the **Orange Coast IBM PC User Group** reports that the club continues to grow by leaps and bounds, with about 475 current members. He adds that the club's monthly meetings are attended by 250 to 300 people—which means, among other things, that if you're having a problem with your IBM or clone, somebody there has probably dealt with it and can help you. For more information, call Tom at (714) 850-0474, or write OCIPUG at P.O. Box 6100-211, Costa Mesa, CA 92628.

Mac-using BASIC programmers might want to check out a new group in San Francisco. The **Bay Area Mac MS BASIC Users Anonymous,** says **Ted Jones,** meets on the second Tuesday of the month at 7 pm. in the sanctuary of the Noe Valley Ministry, 1021 Sanchez St. in San Francisco. The first meeting, Ted says, will feature utility program demonstration. You're invited to bring a disk and get a copy. He adds that the club offers opportunities for "Show & Tell, Kvetch, Help and Trash-the-Low-Level-Languages." Interested? Give Ted a call at (415) 826-9239.

Good news for Amiga users in the Bay Area: **Amiga Addicts Anonymous** meets on the third Monday of the month at 1331 Concord Avenue in Concord (the Contra Costa County Water District building). You can get further information from president **Jeff Chase** at (415) 933-0217, or write to P.O. Box 4669, Walnut Creek, CA 94596. The club also operates its own BBS, **BUD-LINX,** at (415) 283-5469, 24 hours a day, 300/1200 baud, 8-N-1.

Marin-based Amiga-ites will want to know about **Amiga Users of Marin,** which meets on third Wednesdays in the Science Center, Room 190, at the College of Marin in Kentfield. Meetings are at 7:30 pm. If you'd like to know more, call Bob Galvan at (415) 924-5384.

Outgoing president **D.A. Smart** of the **Roseville Apple Core** reports that **Bruce McLeod** was elected president in February. Bruce is now the proper person to call for club info, and he can be reached at (916) 723-6422. The club now meets twice a month, on the second Wednesday and fourth Tuesdays of the month at the SMUD Foothills Building, training room D, at 7 pm. The building is located at the intersection of Don Julio and Elkhorn streets. The club also offers additional SIG meetings for *AppleWorks,* BASIC, TelCom and Macintosh.

Chuck Thorp of **COAST,** the **California Original Atari ST** user group, gleefully reports that the group has now grown to over 250 members and has had to move to larger quarters. The club now meets on the third Wednesday of the month at the Berkeley Conference Center, 2105 Bancroft, Berkeley. The beginners' meeting starts at 6:30 pm, and the main meeting at 7 pm. Meetings are open to the public, but there is a $2 fee for non-members. Meanwhile, the members-only EaST COAST meetings continue on second Tuesdays, 1015 Esther Drive, Pleasant Hill. Interested Atarians are invited to call Chuck for more info at (415) 945-1949.

Vertical Market Alert: the **Mac Health User Group** meets at various times and locations in the Bay Area. It's intended for users (current and prospective) of the *DentalMac, MediMac,* and *ChiroMac* packages, and, says **Robin Guest,** is devoted to "discussing ways to better use these billing and accounts receivable programs and the Macintosh in the health care field." Give Robin a call at (415) 387-3042.

Ralph Gallagher of the **San Francisco Computer Society** reports that the club, which supports users of CP/M and MS-DOS computers, has a new meeting time and place. It now meets on the first Monday of the month at 7 pm at Homestead Savings and Loan, except for the April meeting which will be in the same location on the second Monday, the 13th, at 6 pm. You can call Ralph at (415) 929-0252 for further info, or write SFCS, P.O. Box 783, San Francisco, CA 94101-0783.

Some interesting BBSs are coming our way lately. Highlights from this month's arrivals: **SPACE,** the **Stanford Palo Alto Computer Exchange** (415/964-9039) is a multi-node, 1200/2400, 24-hour-a-day board for what sysop **Jay Fox** calls "PC Professionals and Power Users."

The **tsunami bbs** operates 24 hours a day at 300/1200, 8-N-1 at (415) RAM-2-RAM. If you've been tearing your hair because of the hassles of transferring graphics files between incompatible computer systems, this board is for you. It offers uploads and downloads of graphics programs and picture files; it also collects and distributes public domain graphic format conversion prorgams as well as picture files in MicroIllustrator compatible, IFF, and CocoMax formats.

Those with similar inclinations in the LA area can call the **Microcell BBS** (213/737-2157 or 732-6935), where, says **Fred Heutte** on The WELL, programs such as *READMAC* (for converting Mac .PIC files to MS-DOS format) are available for download. Fred adds that he's encountered a few other excellent MS-DOS type boards in his travels, notably the **Fargo BBS** (701/293-5973) in Fargo, ND, which is run by **Loren Jones** and has over 3000 files available, and **Terrapin Station** (612/623-0152), run by **Howard Ekman.** (Notwithstanding its name, which cognoscenti will immediately recognize as having Grateful Dead overtones, Fred says the board is primarily devoted to "serious" MS-DOS stuff, but Deadheads are, of course, welcome.)

That'll be about it for now. Keep those updates and bulletins and new listings coming in, and feel free to make comments. Also, while we actively discourage people from attempting to post or update user group info by phone because we don't really have the resources to deal with it, we'd like to actively *encourage* you to give us a call if you encounter a BBS we've got listed which seems to have gone a-way. Many sysops are very diligent about keeping us supplied with current info, but others seem to vanish in the dead of night leaving some hapless new person getting weird electronic-noise phone calls in the middle of the night. So if you have the sad experience of calling what you thought was a BBS and getting a less-than-overjoyed person instead, please let us know at (415) 652-3810; let us know the name and phone number of the defunct BBS. All other communiques should be issued by mail—e- to **microx** on The WELL (415/332-6106), US to 5951 Canning St., Oakland, CA 94609. ☐

BULLETIN BOARDS

209

Region 7 TEC Center BBS. (209) 571-5085. Specializing in music and schools. 24 hrs, 300 baud. Sysop: Dan Guerra.

Inn Finity BBS. (209) 521-6240. Inn Finity is an Atari based BBS. Operates on a 130XE with 320K. Signalman 300/1200/2400 baud, 24 hours a day. ATASCII—ASCII. Sysops Buzz and Jann Kelley.

Bullseye BBS. Stockton, CA. (209) 474-FIDO. IBM and compatibles. 300/1200/2400 baud. Open 24 hours, 8-N-1, FidoNet 161/31 Valley PCUG. Sysop: Bob Loeber. Validation required. Lots of MS-DOS shareware.

The Spotlight BBS. (209) 368-5591. 300 baud, 24 hours, 8-N-1, dual drive Commodore 64 operated. Sysop: The Spot.

213

Aware II (213) 851-0780. Sports BBS with different discussion boards centered around USFL, baseball, etc.

HUG1. The official BBS of the Hollywood Commodore User Group (HUG). All HUG members and visitors are welcome to drop by. (213) 874-8256.

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International Collectors Network. Coins, stamps, baseball cards, books, records, antiques and anything collectable can be bought, sold, or traded on the International Collectors Network BBS. Regional lists of collector events and shows in many categories. Also names and addresses of many collector organizations. Accessible using PC Pursuit. Data phone

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Computer Conference Center. (213) 212-5267. TBBS w. Commodore, IBM, TI, Atari, Epson, Apple etc. sub-boards. Large DL with CP/M, MS-DOS and TR-DOS programs. Laurie Flood, sysop.

Hughes Aircraft Message Service. Uploads and downloads for Mac, IBM, Commodore, Atari, etc. Public message boards. (213) 549-9640. 300/1200, 24 hrs., 7 days.

Monolith-1.7 great public boards, private electronic mail, social events. (213) 659-JEDI. 24 hours, 1200/300. Sysop: Erik Goldman.

Mid-Cities Atari ST BBS. 300/1200, 8-0-1, 24 hours. (213) 867-1943. Sysop: Darin Ferraro.

PC Heaven. A multi-computer BBS that features downloads for many different PCs. E-mail, files for various machines, general to SIG message bases. No fees, no special application request forms. Just a fun BBS for everyone. (213) 374-7929. 300/1200, 7 pm-7am M-T, 24 hrs. F-S-S. Sysop: Tony Reeves.

The Mail Box. (213) 402-4079 Lakewood. 24 hours, 300 baud, standard parameters. Features: daily weather, computer news and events, entertainment. Free BBS, sign-on not necessary to read information. Public, for sale, and discussion. Now in our third year. Sysop: Roger Hummel.

Tele-Web. (213) 372-4050. 300/1200, 7-1-N, 24 hours, multi-user. MicroTimes Electronic: Southern California edition of *MicroTimes*. Articles, events calendar, BBS and user Group listings for Southern California, classifieds. Type GO MICRO. Home Loan BBS: Up-to-date home mortgage rates supplied to you by Pacific Mortgage Group, a company that prides itself in getting you low mortgage rates. Rates are updated weekly. Type GO LOAN. Dining-Line: South Bay database of online restaurant menus. Menus may be searched by type of cuisine, price of a meal, name of restaurant, etc. Database includes complete menus and a community forum. Type GO FOOD. LA Weekly Electronic: electronic version of LA's largest weekly entertainment newspaper. Includes feature articles, calendar and events listings, classifieds and more. A new edition each week. Type GO WEEKLY. Easy Reader Electronic: electronic edition of the Easy Reader newspaper. Includes feature articles, weekly calendar, night club listings and classifieds in over 80 categories. Type GO EASY. FREE.

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Jukebox Bulletin Board (JBBS) (213) 670-8053. 8-N-1, 24 hours, 7 days, 300/1200 baud. Message board for buyers, sellers, and anyone interested in antique jukeboxes. Free. CP/M password available on request. No Fees. sysop: Ray Etchepare.

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The Starship Sardonyx Net. (213) 467-6667. 8-N-1, 300/1200, 24 hours. We offer extensive general files, online games, up and download subs, 8 message bases, e-mail. Large public domain section for Commodore users. Sysop: Zed Yago.

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408

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Byte Bandits ColossusNet. (408) 374-3974, 300/1200, 24 hours. Network USA. Sysop Sam C. Brown.

Evergreen PC Users Group (EPUG-1) (408) 270-4085, San Jose. 8-N-1, 1200/450/300 baud, 24 hours. Sysop Bob Allen. 32 megabytes online, 34 directories created by Special Interest Users.

Bizcomp BBS. Sunnyvale, CA (408) 720-9212, 300/1200, 24 hours. Message base specializing in modem technical help, with a special message conference for sysops. No file transfers available. No registration fee, but requires home & business phone numbers on first call.

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Board III (408) 985-7573. 300/1200 baud, 24 hrs., 8 bits, no parity. Board III is an ongoing experiment in telecommunications. Atari-based, but all computers welcome. Sysop: "The Chairman."

ADV in Lrn (408) 247-4769.

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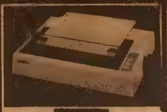

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Fortis DX-25 – 25cps daisywheel, 132 column, 7K buffer, quiet operation, built-in parallel & serial.	$480
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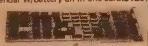

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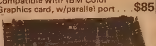

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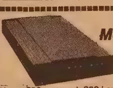

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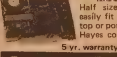
AST Reach, 1200 baud *Special*	$199
Watson Voice/Data Modem	$375
Watson VIP	$275
Prometheus 1200 external	$295
Prometheus 1200B internal	$250



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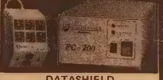

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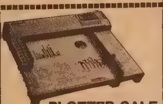

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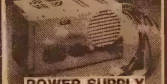

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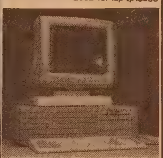

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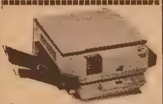

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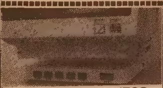

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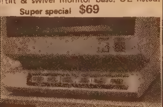

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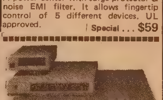

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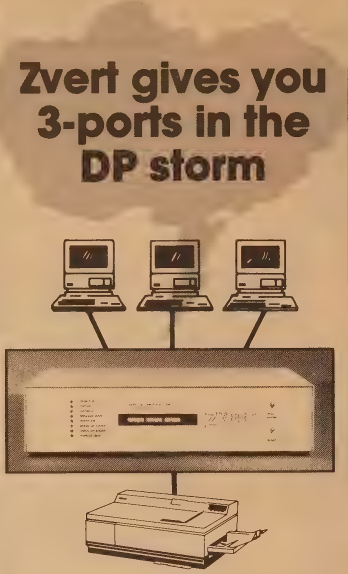
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Bay Connextion BBS (415) 621-7561, 9pm - 9am. 300/1200 baud at 8/W/I. Macintosh Software, Classifieds, Personals, Sexual Freedom, and Star Trek. Claude Wynne, sysop.

Earth-Rite RBBS. We specialize in Earth Religion and related topics. We are not a software exchange. (415) 651-9496. 24 hrs., 300/1200 baud.

MacQueue BBS (415) 661-7374. 100% Macintosh BBS with 8 megs software for download, message base, and Fido-Net Mail (Net 125 Node 2). Instant access, 24 hours, 300/1200/2400 baud. See you on the Q!

MacCircles BBS (415) 484-4412. 24 hours, 300/1200 bps, Mac/Lisa downloads, message base, E-Mail.

Spiritual World. Center for sharing spiritual development. 300/1200, 24 hrs, (415) 366-9033.

Super Resume. A free resume composition system for software engineering and MIS professionals. Produces a detailed, accomplishment - oriented resume. Also the latest weekly FidoNews and FidoList, plus two unique free-form, full-text data base systems available for downloads. No charge. 300/1200, 8, 1, N. 24 hrs. (415) 546-0119 modem, (415) 788-6000 voice.

Co-Ed & Associates. (415) 938-9470. 24 hours, 7 days, 300 / 1200 / 2400. CPM / CPM+ / MS-DOS / Morrow / Zenith / PC and clones. Sysop: Werner L. Gumpert.

Humor & Wisdom. A board dedicated to the exchange of comic relief and things to ponder in a new age of consciousness. Free, as all things should be. 300/1200 baud, (415) 937-2508.

Open Campus BBS (415) 895-0135. Operated by San Leandro High School and Apple Eaters Users Group, 5 meg, 20 message bases plus library. 24 hours, 300/1200. Sysop: Bob Shayler.

Photobytes, a photography oriented BBS, features product information, help files, photo contest listings, plus much more. Sponsored by Wentling Camera Shops. 300 baud, (415) 439-2515, 24 hrs. 7 days.

The Castle BBS. (415) 355-8150, 24 hours. 300-500 baud, 8 bit, 1 stop, no parity. We have 4 message bases, e-mail and UL/DL. CBM oriented but all systems welcome.

Low Overhead BBS. User-friendly BBS, 24 hours, 7 days a week. IBM software, motorcycles and motorcyclists. (415) 763-6794 or (415) 835-9959.

Guideboard, Cabbie's Guide to San Francisco. Where to go for restaurants, doctors, auto repair, etc. The sysop gets his tips from driving a cab; the callers furnish the rest. The BBS also has an resident astrologer, Swami Tommy. The Swami gets his tips from the stars. Ask him any question. (415) 864-3858, 300/1200 baud.

Entrepreneurs BBS: Official BBS for Community Entrepreneurs Organization (CEO), and XT Compatible Club. 1200/300 baud. 24 hours, 20 megs., 8 bits, no parity. Entrepreneurial networking and information, brainstorming, and on-line support for IBM XT clones. Sysop Edwin Rutsch. (415) 552-9070.

APT Action BBS. C64 board dedicated to exploring on-line entertainment. Free ACTION-AUT software. 24 hours, 300 baud, (415) 322-3213.

RSVP BBS. (415) 659-9169, 300/1200, N-8-1. 24 hours. Sysop Jim Thomas. FAUG Amiga User Group discussion and file area, Dr. Who forum, Sanyo, IBM, CP/M files, CP/M forum, Ohlone College forum.

Marin Community BBS (415) 459-3326. 300/1200 baud, 6 pm - 10 am M-S, all day Sunday. 520 ST/Atari information. Sysop Dave Powers.

MacCircles EBBS (415) 484-4412. 24 hours, 300/1200/2400. Running Red Ryder Host software on a Lisa 2/10 (Mac XL). Large software exchange, private mail system, public messaging.

Musician's Network BBS. Musician's information exchange. Space for want ads, bulletins, and public mail. Uploading and downloading available. BBS operates on Fido Software. 8 bits, no parity, 1 stop. Weekends only, 6pm Fri-6am Mon. (415) 893-1618. Sysop: Erik E. Hayles.

520 ST Atari BBS (415) 783-5545, 24 hours, 7 days a week. 300/1200, 8 data bits, 1 stop bit, no parity. Official Sixteen Bit Atari BBS of the San Leandro Computer Club, this system offers full support for all Atari ST system users. Currently running on a ten megabyte hard disk system, the system has many special interest areas including graphics, C, Pascal, LOGO, Basic, MIDI / music, communications and more. Supports four types of XModem/Modem7 and Kermit protocols. Call today! Sysop: Michael Curry.

AutoCAD RBBS (415) 547-5264. 24 hours, 7 days, 300/1200 baud, 40 megs online. Sysop Robert Schultz. Supporting AutoCAD, the world's most widely used PC based design/drafting software. There are 4 megs of AutoCAD drawings plus third party public domain programs that work with AutoCAD (i.e. menus, Autolisp and lisp macro libraries) available to download.

Insight BBS (415) 229-0551. 300/1200 baud, 24 hours, 7 days, 8-N-1. Now running PC-Board on an IBM clone with 20 megs on-line. The board now has 7 conferences and is looking for "message" oriented people who love to talk. There are no status levels, and everyone is invited! Carl Orsi, sysop.

AIDS Information BBS (415) 626-1246. 24 hours, 300/1200 baud. Sysop Ben Gardiner. Free. All welcome. Statistics from Atlanta and San Francisco displayed, updated regularly as received. Sample Q & A about AIDS, based on clinic and phone exchange experience. Mail send/receive on AIDS; please not on other subjects due to limitation of one phone line. Please also no more than one hour per day. Mobilization Against AIDS information here. Calls to this BBS never disturb anyone.

Actrix Enthusiasts RBBS / RCP/M (415) 968-1783. 300/1200 baud, 24 hours, Free. Registration required. 46 megabyte CP/M system. In Mountain View. Sysop: Andy Bajka.

BBS-JC Just Computing. (415) 961-7250, 7E1/8N1. 24 hours/7 days, 300/1200/2400. Amiga and CBM public domain software. If it's new, see it here first! 8 sections including Commodore announcements are currently in operation. This board is especially for "Silicon Valley" Commodore users. Sysops: Thad Floryan and John Cronin.

Bug's Net HP. This bulletin board has over 20MB of PD software available. Message areas include HP300, IBM PC Technical and consultants forum. Fido node #10/777 (pending). 300/1200/2400 baud. 24 hours. (415) 236-1823. Sysop: John Buginas.

Professional Software Programmers Association. 830 Bay Avenue, Suite G, Dept. F, Capitola, CA 95010. A 24 hour service and support bulletin board for computer professionals. (408) 462-2829. 8 bit, no parity, 300/1200/2400 baud. No fees. Product reviews, professional job registry and consulting registry services. Ask for copy of the Association's free monthly newsletter and membership information packet.

A.M.U.L.E.T. II: Inform-Serve. (415) 989-5054, 24 hours, 7 days, 300/1200 baud. 95+ sub-boards, on-line gaming and many RPGs, 52 MB of on-line storage. Sysops: The Starmaster/Magician Merlin.

L'Expres! (415) 538-6340. Atari, 300 baud, 9pm-6am daily. Runs BBS: Express! software. Sysop: Greg Manubay.

The Dead Knight's Tavern. (415) 364-6877. Fantasy role-playing bulletin board system. 24 hours at 300 baud. NO FEE. System Overlord: Shane White a.k.a. Samuel Kline.

MicahLink. Free, 24 ours, 7 day private BBS for Mac users. Sponsored by Micah, Inc. On-line support, discussions, directory of MicahDrive dealers. (415) 771-1119 modem, (415) 331-6422 voice.

The Pirate's Hollow BBS. 24 hours, 300 baud. Ye Cap'n: The Atari Pirate. (415) 593-6784.

Draco-Net Prime. (415) 474-

8608, 300/1200. Official BBS for: A+ Magazine, International Apple Core, San Francisco Apple Core, Apple Three Users of Northern California, and Carrier.™ 24 hours, no fee. Leonard Reed and Jono Smith, Sysops.

Recovery BBS. (415) 621-5206. FidoNet Nodes 125/9 and 125/31. If you are in a 12 step recovery program, or think you have a problem with alcohol or drugs, or if you are compulsive about eating, smoking, or sex and love, call. Share your experi-eeence, strength and hope in message sections that include AA, NA, CA, OA, SA, SLAA and Alanon/CA. There are meeting listings in the file areas.

Cat's Tail Mega-System. (415) 349-TAIL (349-8245). All welcome. Nearly 100 public message forums, both computer- and non-computer-related subjects. Five on-line games, public domain file transfers for IBM, Apple, CP/M. Running on Apple IIGS. 300/1200, 24 hours.

Family Radio Forum. (415) 562-5483. 300/1200/2400, N-8-1, 24 hours. Download, upload, message, conference on parenting. For teens, singles and clones. Christian RBBS for everybody. Sysop: Richard Yim (voice 415/568-6200). Also (301) 261-1423 (Annapolis, MD), (712) 246-2115 (Shenandoah, IA), (916) 481-6320 (Sacramento, CA).

POPnet Berkeley is 15 lines of fun and games for all. Chat, CB channels, games with others. Mail and bulletin boards, of course. Not free, but cheap. 24 hours, 300/1200, (415) 527-4510. **POPnet San Ramon** is 10 lines of fun and games. Chat, CB channels, games with others. (415) 830-1191. **POPnet Walnut Creek** is 19 lines of fun and games. Chat, CB channels, games with others. (415) 932-4263.

Vaudeville Local. (415) 337-8693. 24 hours, 8-N-1, 300/1200. Vaudeville Local is a BBS dedicated to vaudeville and circus arts. Sysop: Arthur Conway.

Crossroads BBS. (415) 968-9341. 300/1200 baud, 8 bits, no parity. 24 hour operation. File transfer for IBM/compatibles, Commodore 64. Message bases include space travel, singles, political dissent, sexual freedom, stories, poetry, musician's referral, programmer's corner, adventure gaming. No fee. Mike Macgirvin, sysop.

LaserWriter BBS. (415) 261-4813. 300/1200 baud, 24 hours. BBS dedicated to desktop publishing. Sysop answers all related questions. Located within Allen Computer Graphics, desktop publishing specialists. Files, messaging, user groups, e-mail. Upload direct for LaserWriter printout or to order other products offered by Allen Computer Graphics. Macintosh and other computers welcome. Sysop: Tom Allen.

The Records Department. (415) 426-0470. User registration required. Public domain and shareware programs available for download at 300/1200/2400 baud. Caters to IBM; also Apple, Commodore, Atari. Large, friendly discussion section with something for everybody; games, voting booth, technical help. Bill McCauley, sysop.

Silicon Valley Computer Society BBS. (415) 968-6891, 300/1200, 24 hours. Sysop: Herb Shear.

Computer Adventure Center, C.A.C. 24 hours daily, 300-2400 baud, in Fremont. No fees, IBM based but open to all callers. New BBS#: (415) 490-7365. Sysop: Al Demar.

Breakthrough Software BBS. Support for TimeLine users. (415) 892-0408, 300/1200/2400 baud, 8-N-1. XMODEM or Kermit protocols. 7 days, 24 hours.

EBMUG BBS. Running 24 hours a day, 300/1200, 8-N-1 at (415) 848-2609. Private mail system, public messages, Macintosh software.

KAY+FUN RCP/M. (415) 572-8219. MS-DOS, CP/M, modems, business applications (e.g. *dBASE*, *Lotus*, *Reflex*, Wordproc). General discussion of commercial and public domain software. Also public domain and private file transfers and more. FREE online registration. 300/1200/2400. Sysop: Ernest Hintz. Sponsored by KAYFUN users group.

Programmer's Circle. (415) 239-1722. 8-N-1, 300/1200, weekdays 3 pm-11pm. The Programmer's Circle specializes in carrying source code and tools to aid the programmer. Special attention is given to the Macintosh and Apple II computers, but all computer users are welcomed. Data files are online for the Mac and Apple II computers. Sysop: Roger Gibby.

The Live Wire. (415) 540-0529. 300/1200, 24 hours. A digital magazine for the graphic-arts community (printers, typesetters, self-publishers, artists). Free. Sysop: Rick Hepting.

SIGSIG BBS/RCP (formerly MEBBS) is back online! Member of the FOG and PRACSA networks. Supporting CP/M and MS-DOS public domain software and a public-access message system. No fees, novices welcome. Online registration for FOG, PICONET and PRACSA members. 24 hours, 300/1200/2400 baud. Sysop: Jim Switz. Located in Mountain View. (415) 968-7369. Call today!

Machiavelli Interface. (415) 659-1168. 8-N-1, 24 hours, 7 days, 300/1200. IBM and compatible PC board with Net-Mail feature. 30+ megs of downloads, conferences. Sysop: Dewayne Mikkelson.

Cold Moon On A Single Star. (415) 668-6101, San Francisco. 24 hours, Fido board. Chinese culture, history, language, Chinese cooking, discussion, etc. Asian community events. Sysops: Joseph Puig and Susan Chen.

Dr. Don's TBBS. (415) 885-1973, San Francisco. 300/1200, 24 hours. CarTalk and SportsTalk discussion and special interest boards. Private e-mail. All automobile sportscar enthusiasts, sports fans, softball-baseball-football players are invited to call. Sysop: Dr. Don. Co-sysop: Bimmer Pilot.

Centerville RBBS. (415) 793-3037. 300/1200/2400 baud, E-7-1 or N-8-1, 24 hours daily. Sysop: Joe Halbleib.

The Board. (415) 652-8277. 1200/2400 baud, 8-N-1, 24 hours. Public and private conferences, technical support. For AT&T and compatibles; AT&T PC support conferences. Associated with Bay Area AT&T PC6300 Users' Group. Sysop: Troy Blackburn.

Attitude Adjustment. (415) 939-1639. 8/N/1, 24 hours, 7 days, 300 baud. Call today and get your Attitude adjusted. . .just for fun. If you have an Attitude and want to tell people about it, you know where to call. Small but growing system: 8 message bases, private e-mail, voting, textfiles and a few downloads. Emphasis is on interaction between Adjusters on the message bases. Sysop: Rick Adjuster.

Dial-Your-Match #341 in Hayward. (415) 489-2572. 24 hours, 7 days, 300/1200 baud, no charge. Sysop: The Matchmaker.

Yet Another BBS. (415) 689-8952. 8-N-1, 300/1200, 24 hours, 7 days. Upload/download, entire public domain library of "The Ulternate Source." All makes of software, message base, e-mail. Friendly sysops! Jim and Alex Stewart.

Track 3 BBS. (415) 540-7570, 300/1200 baud, 24 hours, Berkeley. for railfans, roller coaster enthusiasts, transit issues, and the like. Sysop: Robert Parks.

Infolinc RBBS. (415) 672-9270. 8-N-1, 300/1200/2400 baud, over 500 files online, conferences, doors, online chat with other users. Special private line for supporting users, running PC Board 11/6/E, 24 hrs. Sysop: John Palmer.

DYM #56. (415) 964-3255. 8-N-1. 24 hours, 300 baud. Features user match function and e-mail, five message boards including Public, User Activities, The Flea Market (Buy/Sell/Trade) and two Adults Only boards. No fee required, but online registration is required. Sysop: Velvet 150.

Palladin BBS. (415) 332-1655. 1200 baud, 8-N-1, 7 days, 24 hours. Sysop: Al Kalian.

The DeskTop Publisher. (415) 856-2771. 300/1200/2400 baud, 24 hours, 7 days. Dedicated to desktop publishing, with particular emphasis on the use of DOS based hardware and software. Upload / download / messages/conferences. Anyone interested welcome. No fee. Registration required for full participation. Sysop: Freeman Bradford.

The Nimitz DownPort. (415) 276-3677. 8-N-1, 24 hours, 7 days, 300/1200 baud. The Nimitz DownPort offers a wide variety of message bases including Adult. With a BBS that has parties, educational offerings, discussions with nationally- and locally-known "geniuses" and experts, and "hands-on" role-playing games, there is no reason not to dock here. Call today and be a part of tomorrow. Sysops: Lady Godiva and Portmaster Kevin Munrow.

Marin-Sonoma PC Users Group BBS. (415) 927-1216. 300/1200 baud, 8-N-1. Sysop: Howard Leistner.

California ConneXion Party-line. (415) 927-2739. An adult oriented multi-user, multi-interest system featuring matchmaking, 12 public message boards, on-line chat with other users, questionnaires and more! Very fast operating system. 7 meg system. Currently operating with 3 lines—more lines to be added soon. 8-N-1, 300/1200/222400, 24 hours, multi-line system on rotary. Sysop: Alan.

Impeesa's Path. (415) 582-4863. 1200/2400, 8-N-1, 24 hours. Focused on outdoor activities. Conferences on camping, hiking, fishing and hunting, photography, Boy Scout activities. Also features "Doors," supports graphics. Sysop: Ed Reardon.

The Wizard Net. (415) 481-8413 San Leandro; (415) 232-6981 San Pablo. Full duplex, 1 stop bit, no parity, 6 am-6pm M-F, 24 hours weekends, 300/1200 baud. A user friendly system that utilizes Commodore color graphics. The more time that you put into the system the more you will be able to get out of it. System has bulletin boards, e-mail, voting booth, a chat feature, ul/dl, and online games. There are no fees, and everyone is welcome. Registration required. Sysops: Dave Rasmussen, Keith Parrish, Olivia Parrish.

AI-NET. Public OPUS board with 20 MB of files. Echo newsgroups for dBASE, Technical Forum, Mainframe Forum, Software Evaluation, Buy/Sell, National Mail, and more. Available between 3 am and 11:30 pm daily. 300/1200 settings: 8-N-1. 125/125 in the Matrix. (415) 776-6628.

SFPCjr UG BBS. Sponsored by the SF PCjr User Group. 1200 baud, 8-N-1, 24 hours. Sysop: Larry Buoncristiani.

RSVP BBS. (415) 659-9169, 24 hours. Japan mail exchange, Doctor Who, Ohlone Forum, Amiga Music-net and Tech-net. IBM/Amiga/Atari files. Always something new! Sysop: Jim Thomas.

tsunami bbs. (415) RAM-2-RAM. Graphics specialty board for most microcomputers. Supports wider interchange of graphics files between "incompatible" systems. U/L's and D/L's for graphics programs and picture files. Collects and distributes p-d graphic format conversion programs, as well as picture files in Microillustrator-compatible, IFF and CocoMax formats. 300/1200 baud, 8/N/1, 24 hours.

Trading Post BBS. Information Exchange system, (415) 948-4163. Open system with more than 20 discussion groups covering everything from Atari to ZCPR3. Online games and 200+ articles. Free. Sysop: Lars Rosengreen, a.k.a. Eskimo.

SPACE-The Stanford Palo Alto Computer Exchange. A BBS for PC professionals and power users. Validation required. (415) 964-9309, multi-node, 2400/1200 baud, N/8/1, 24 hours. Sysop: Jay Fox.

Production World On-Line. (415) 571-6160, 300/1200/2400 baudd, 24-hours. An additional service from **Production World On-Paper**, a printed publication for the motion picture film, broadcast television, video and audio communities featuring Northern California people and facilities. A variety of information and message bases available. Sysop: Wes Dorman.

Amiga Addicts Anonymous BBS. (415) 283-5469 "BUD-LINX." 24-hours, Xmodem, 300/1200 baud, N/8/1. Sysop: Randy Spencer.

619

Ramona BBS. (619) 789-6235. 24 hours, 300/1200 baud, C128, C64, Amiga, Atari, IBM, CP/M. P.O. Box 373, Ramona, CA 92065. Sysop: Digiteer.

Sysware BBS. 24 hours, 300/1200 baud, (619) 278-8661. Commodore machines only. Sysop: Don Malette.

The Nassau XPress. (619) 433-XPRS. 8-N-1, 300 baud, 24 hours. An information and entertainment BBS with 11 message bases including electronics, amateur radio, computer news, music, adventure games, BBS review. Full access is granted to long distance callers with same day validation for new users. UL/DL available using XModem or Punter. Private e-mail, text files, online games and utilities. Sysop: Dan Wright.

Willy-Net. (619) 535-0816. 300/1200, 8/N/1, Large download and message area. IBM. Sysop: Willy Bergner.

702

Public Domain Software Interest Group. (702) 794-3665. 24 hours, 300/1200/2400 baud, 8-N-1. Public domain software available for downloading, message board, and user supported donations of software. Sysop: T. Heisserman.

707

Napa Valley RBBS / RCP / M (707) 257-6502. Interests in Atari, Apple, Osborne, dBase II.

Survival Communication Forum. Fido 125/7. Focusing on preparedness and self-sufficiency. Multiple message and file areas. A MedNet member system featuring weekly CDC reports, medical text and news files. Open to all. 23 hours daily, 300/1200 (707) 545-0746. Don C. Kulha, Sysop.

R.A.G. (Redwood Atari Group) BBS. 300/1200, 24 hrs. (707) 539-8889. Sysop: Bill Marlin.

STATE BBS ST and 8 bit Atari. Supports all Atari computers. On line surveys, public domain software, discussion and a built in adventure game (if you can find it). 300/1200 baud, 24 hours a day, full duplex. Sysop: Mikkel Lawrence. (707) 585-2194.

Softy's BBS. (707) 437-4334. 24 hours, 8N1, full, 300/1200. An Apple BBS with a technical theme. We have boards for IBM as well. Retail store advertising with discounts for users of this BBS. John Hagen, sysop.

UNIBLAB BBS. (707) 422-1669, 8-N-1, 24 hrs. 300/1200 baud. Community-oriented BBS. On-line games, SIGs, XMODEM protocol, no fee. Sysop: Ben Harris.

Sigma BBS. (707) 274-8561. Call this BBS for the best IBM-PC/compatible RBBS in the Redwood Empire. Over 650 downloadable programs. We feature "Doors" software for your adventure playing moods and Tradewars II, a multi-player galactic challenge. Tradewars can support up to 70 players and features sector movements and planet creation. We also support the latest in RBBS-PC Bulletin Board Software, Procomm communication with utilities software and many other programs. 24 hours, 300/1200/2400, 8-n-1. 72 minutes allowed daily. Sysop: Randy Sun.

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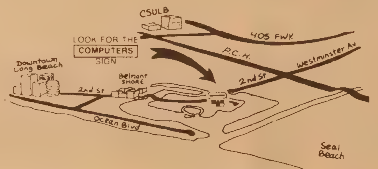

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Valley of the Moon BBS. (707) 996-7922. 24 hours, 7 days. 300 baud. Free. Primarily set up for Radio Shack and COCO II, but all are welcome. Come join us. Sysop: Wes Ford.

Newsstand. (707) 539-3612. 300/1200 baud, 24-hours. Discussions on philosophy, politics and other topics. No Fee. Sysop: Bryan Magers.

714

The Consultant's Exchange BBS Serving professional computer consultants and students since 1983 with the finest public domain software for the IBM-PC. Featuring consultants list and job list. (714) 842-6348 24 hours.

Computer Consultant's Network problems, solutions for business,legal and engineering problems. Referral service. (714) 982-5994 intro file.

Environet. (714) 731-6439, 300 /1200, no parity, 8 bits, 1 stop bit. David Salahi, sysop. The online source of information and contacts for the environmental community. To log on, use user id 105, password PARKS.

El Toro RBBS/RCPM. (714) 855-0672. 24 hrs. 7 days/week. 300 / 1200 / 2400 baud. No charge, open access, no registration. Specialize in ZCPR3 and CP/M PD utilities. Sections for AMPRO, SB180, dBase II, TPascal, Modula-2, Wordstar, ZCPR3, modems, SIGM and utilities. Over 3000 programs in 88 megabytes online. Public E-mail system. Easy to use ROS system. The collection point for Modula-2 in So. Calif.

K-WEST. (714) 646-3060. 8-N-1, CP/M and DOS. 24 hours, 300/1200/2400. Sysop: Peggy Lloyd.

The Byte Zone BBS. 7 days, 24 hours, 300/1200 baud. Serves all Tandy computers and many others, including MS-DOS. Features adventure help files, electronic mail, message bases and download menu. Sysop: Franco Collino. (714) 639-3566.

Easy On of Moreno Valley. (714) 924-4324. Offering 65 meg of public domain (5000 files) for IBM and CP/M operating systems—Kaypro 10 networked. 2nd biggest library in California, with a local network in Newport Beach and across continental USA. BBS offering private one-on-one tutoring to endusers. Leave msg. for sysop if not available—we return your message and try to assist you. 24 hrs, 7 days, 300/1200/2400. Sysop: Al Cobb.

CMC Computer Systems. (714) 835-0910. Information boards: Apple II, Apple III, Laser 128, IBM, Buy/Sell, hard disks. 300/1200 baud, 24 hours. Sysop: Charles F. McConathy.

Amiga-Line. (714) 772-4097. 24 hours, 300/1200 baud. 100% Amiga for Orange County. Sections for graphics, sound, BASIC, ROM kernel, C, Hardware and Games. Sysop: Tom Jacobsen.

Diamond Bar BBS. (714) 861-7268. 8-0-1, full duplex. 24 hours, 365 days. Sysop: Albert E. Ray, Ph.D.

The WOCCUG Board. Operated by West Orange County Commodore User Group. EBBS, 8-N-1, 24 hrs, 300/1200. (714) 772-4182. Sysop: Mark Stanford.

The Buckeye BBS. (714) 821-0589. C64, Punter, Xmodem, 300/1200 baud, 24 hours. Sysop: Art Collins.

FBBS. (714) 823-3673. 24 hrs., 300/1200 baud, full duplex. 50 megabyte system based in Fontana. Downloads for Commodore, Amiga, IBM, Atari, Apple, CP/M. 17 active message bases, weekly online magazine. Sysop: Larry Krzewinski.

GameNet. (714) 520-4263, 24 hours, 300 baud, multiuser board. This Orange County based system features interactive games, a chat area, and an online mail section. Sysop: Merlin or Patches.

Bits and Pieces Times BPT-#. (714) 630-5619. 300/1200, No parity, full duplex. 9 pm-9 am. Sysop: John Callaci; sub Mike Dalton.

Software Exchange. (714) 552-3515. 300/1200/2400, 24 hours, 7 days, 8-N-1. Specializing in public domain and shareware for IBM and compatibles. Over 2000 programs in 42 megabytes on line. Features include private and public message bases, conferences and online help and menu screens. Beta Tester for "Wildcat," the next generation of BBS software. Sysop: John Coon.

C-TUG BBS. (714) 458-1288. Punter protocol, 24 hours, 300/1200 baud. Sysop: Les Gertz.

77-Amiga. (714) 77-AMIGA. 300/1200 baud, 24 hours, 40 meg. drive. Sysop: Al Cheser.

717

The Dead Board (717) 677-9573, 24 hrs., 8 bit word, 1 stop bit, no parity, 300/1200 baud. Grateful Dead tape trading and info; space for bulletins, ads and public mail.

805

Thousand Oaks Technical (805) 493-1495. This massive 64 megabyte board has a mind-boggling number of downloadable programs. The board has no bulletin board feature and allows unlimited upload time. Download time is limited depending on upload exchange.

KERNCOM. (805) 322-8800. 300/1200/2400 baud, 24 hours, 7 days. KERNCOM has operated continuously since March 1983 for the IBM community. KERNCOM is owned by the Kern Independent PC Users Group and is never off line except for routine maintenance. Sysops: Rick Heming and Jim Harrer.

CCCUG BBS. Central Coast Commodore Users Group. (805) 934-2216. 24 hrs/7 days, 300 baud, Punter BBS protocol for downloads. Sysop: Greg Johnson.

PC Vision. (805) 487-3149. 300/1200, 8-N-1, 40 megs. PC-, MS-DOS programs. Sysop: Frank Driscoll.

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Granada Engineering Group RCP/M (818) 360-5053. Technical information, BBS lists, and help on CP/M assembly language program writing.

Oracle BBS (818) 980-6743, system password MICROTIMES, is a multi-interest, multi-user BBS running 6 phone lines on a CompuPro. Features include 8K messages, comments on messages, match-maker, adult material section, online CHAT between users and much more. 24 hr., 300/1200 baud.

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Atari Resource Magazine (ARM) (818) 446-5813. 24 hrs.,

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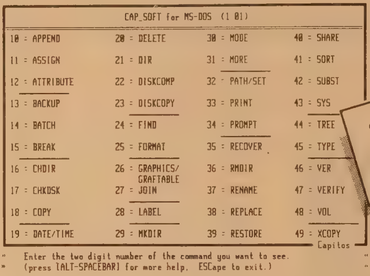

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Computer Professionals for Social Responsibility. The LA chapter is interested in computer reliability and preventing nuclear war, the socially useful direction of computer research, and similar topics. They meet most third Wednesdays at 7:30 pm at varying locations. Contact Rodney Hoffman, P.O. Box 66038, Los Angeles, CA 90066, (213) 932-1913 for more information.

Organization of Professionals, Educators, and Novices (OPEN). Tutorials, random access period, feature presentation, public domain library, and CP/M literature are all part of the monthly meetings of Osborne owners/users and MS-DOS transportables. Club BBS and newsletter. Call Frank L. Christ at (213) 498-4186 for more information. Meetings at Learning Assistance Center, CSU Long Beach, 3rd Wednesdays, 7 pm.

The North Orange County Computer Club. This group is the largest and perhaps the oldest in the county. It is affiliated with a large number of special interest groups and offers something for just about every user. General meetings are usually the first Sunday of every month in the Hashinger Auditorium, Chapman College, Orange. For info, call (714) 998-8080.

The South Orange County Computer Club. A general computer club that meets the first Tuesday of every month at 3545 Harbor Blvd., Costa Mesa. Meetings begin at 7:00 P.M.

Valley Computer Club. Monthly meeting at 7 pm, first Wednesday of month in Burbank Board of Realtors Bldg., 2006 W. Magnolia Blvd., Burbank. All types of micros represented. Contact W.R. Robinson, 11850 Louise, Granada Hills, CA 91344, (818) 368-1383.

INTERFACE is a Los Angeles area gay and lesbian computer users' group for socializing and exchanging information. Meetings are open to all, regardless of level of experience. There are no dues or membership requirements. For additional information call Jim (213) 664-1127 or Pam (818) 368-0437.

San Diego Computer Society. Umbrella organization for over 40 Special Interest Groups (SIGs). Sponsors meetings, newsletters and annual computer fair. Meetings at Mesa College, 7250 Mesa College Drive, San Diego, 11:30-4, third Saturday each month. Contact Membership Chairman, P.O. Box 81444, San Diego 92138, (619) 549-3783. BBS (619) 549-3788.

Consolidated Computer Club. Meets first Fridays. 7 pm, Progressive Savings Bank, 12175 Ventura Blvd., Studio City, CA. Dues $25 yr. Send SASE to David Nussbaum, 11558 Riverside Dr., #207, North Hollywood, CA 91602.

Professional Typists/Word Processors Network to meet Sept. 9, 7 pm at Santa Monica Montessori School, 1619 20th St., Santa Monica. Network was formed for homebased typists and word processors to share information and referrals. Meetings consist of outside speaker and networking. $2 per meeting. Contact Fran Brevig, 6399 Wilshire Blvd. #1A, Los Angeles, 90048, (213) 651-1479.

Hughes Aircraft Computer Clubs. This club is for Hughes Aircraft employees only, but the BBS is open to everyone. Upload and download boards for Macintosh, IBM, Atari, Commodore, etc. Each board has its own public message service plus general message board. Contact Bud Grove, 21111 Dolores #146, Carson, CA 90745. BBS (213) 549-9640, 300/1200 baud, 24 hrs., 7 days.

Ventura Personal Computer User's Group. All MS-DOS and PC-DOS machines. Meetings 3rd Saturday 9 am-12 noon, Foster Library, 651 E. Main, Ventura. Contact Mike Regan, President, 301 Dana Point, Ventura, CA 93004, (805) 647-8273.

Micro User's Group — SFV Board of Realtors. Meetings 7232 Balboa Blvd., Van Nuys, 7 pm. third Thursday. Contact Mary Lou Williams, (818) 786-2110 for more information.

South Bay Computer Education Group. Supporting Apple, Atari, Commodore, IBM and compatibles, and TI99/4A. Meeting 2nd Wednesday of each month. Time 7 pm at 3675 Torrance Blvd., Suite 202, Torrance, CA 90503. Contact Jack Ward (213) 530-4879 or Judy Adams (213) 540-5010.

UCLA PC Users Group. IBM PC or compatibles owners welcome to join us on the 2nd Tuesday of the month, 7 pm. Public domain library , SIGs, BBS, seminars and newsletters. NPI Auditorium, UCLA, Westwood Plaza, Level C. For more information call (213) 473-6668.

Citizens Veto. For users with an interest in socio-economic issues who might want to try their equipment in working a model of a new approach. Primarily graphics and numbers, minimal text. Ewald O. Schlachter, (415)452-0151.

Pro*BUG—Professional Business Users' Group. Formerly Xerox Users Group. Meets 1095 Irvine Blvd., Tustin, 1st Saturday each month, 9 am. BBS (714) 543-3187, 300 baud, X-modem protocol. CP/M, PC, MS-DOS. Contact Allen Ashley, (714) 537-4608.

ICCA (Independent Computer Consultants of America. A nonprofit national association dedicated to the independent computer consultant. Its goals are to promote professionalism within the industry, increase awareness of ICCA to clients, and provide group benefits to members. Meets at Revere House, Tustin, 2nd Thursday, 6 pm. Contact Bill Creel, membership chairman, ICCA-OC, P.O. Box 3067, Santa Ana 92703, (714) 666-1981.

LAC-BUG (Learn About Computers—Beginner's Users Group. All computer owners and prospective owners eligible, ages 3 to adult. Educational materials and hands-on training included with membership. 24 hour telephone: (213) 372-8909.

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JUG (Jefferson State Computer Users Group). Many SIGs, newsletter. Dues $5.00 year, some SIGs additional. Contact JUG, P.O. Box 457, Gold Hill, OR 97525-0457.

MicroPro Users Group of America. National group with over 200 members worldwide. Dedicated to supporting MicroPro products, especially WordStar and InfoStar, for any hardware. c/o Procyon Associates, 140 Riverside Drive, New York, NY 10024. (212) 595-4811.

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PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

KAPPA (Memphis Kaypro Users Group). Meetings at 2 pm, 1st Saturday of the month, Room 2, Jennings Hall. Contact Hugh Lamar, 5983 Macon Cove, Memphis, TN. (901) 377-4140.

The AppleWorks Users Group (TAWUG). c/o Regional Rep, 27421 Berenda Way, Hayward, CA 94544, (415) 887-7499.

FORTH Interest Group, International Office. P.O. Box 8231, San Jose, CA 95155. For further information call (408) 277-0668.

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National TeleVideo Users Group. Meets 7:30 pm, 3rd Thursday, 1170 Morse Ave., Sunnyvale. P.O. Box 22007, San Francisco, CA 94122. Call for info—David, (415) 753-1552.

Apple Fontrix Club. Monthly newsletter. P.O. Box 29857, Thornton, CO 80229-0857.

N.A.B.V.I.C.U. - The National Association of Blind and Visually Impaired Computer Users. The purpose of this group is to gather information that will assist the blind or visually impaired person in utilizing the enromous potential of computers. It supports **Compu-Help**, a menu driven database-bulletin board programmed for use by the blind and visually impaired. It is available 24 hours a day, 7-days a week, 300/1200 baud, 8 or 7 bits, even or no parity, 1 stop bit. (916) 786-3923. Compuhelp is also available on disks. For more info, contact Otto C. Haiungs, Chief Executive Officer, Sysop, at P.O. Box 1352, Roseville, CA 95661-1352. (916) 783-0364.

USER GROUPS

AT&T

AT&T PC6300 Users' Group. Meetings at various locations—contact BBS for latest information. Or write Eric Levinson, P.O. Box 7364, Burbank, CA 91510. BBS (818) 954-0530, 300/1200, 8-N-1, 24 hours.

ORCA - Orange Riverside Counties AT&T 6300 UG. Meetings bimonthly, second Saturdays, 11:30 am, at 2144 Michelson Drive, Irvine. Contact Chuck Patten, 1220 Page Circle, Corona, CA 91720, (714) 851-0119, ext. 234.

ADAM

Adam Users of Southern California. Come and keep the ADAM going. We have access to some of the people who developed software for ADAM and we are going to create a base for tips, reviews, and a BBS. Get on line with ADAM. Meetings at Airport College Center, Sepulveda and Century, 4th Sunday, noon. Contact Harvey Klein, 1736 S. Bedford, LA, (213) 553-1062 or Paul Shecter, 5545 Lindley, Tarzana.

ALPHAGRAPHICS

Alphagraphics. Contact Stella or Jim Muller, 16425 Bernardo Ctr. Dr., San Diego, Ca. 92128, (619) 451-2250.

AMIGA

Amiga Users Group. A chance to meet and talk with other local Amiga users, review software, and exchange public domain software. Meetings 7:30 p.m., 1st Tuesday. Call Roy Wagner, (714) 892-5500 for more info.

Amiga Friends. Meets 3rd Monday of the month, 1 pm, at the Santa Ana campus of Rancho Santiago College, Bristol and 17th St., Room R124, Santa Ana. Contact Russ Kavanagh, (714) 898-2947. Call for more information, we'll see you there!

South (LA) County Amiga Users Group. A chance to meet and talk with other Amiga owners. Software reviews and public domain library. Meets at Mid Cities Bank in Bellflower on Lakewood Blvd., just south of 91 freeway, on 1st Tuesday at 7:30. Call Roy Wagner at (213) 832-3361 x4689 for more info.

San Fernando Valley Amiga User Group. Meets 2nd Thursday of the month, 7-10 pm, at American Legion, 7338 Canby Ave., Reseda. We've got demos, SIGs, newsletter, PD library, disk of the month, ANSWERS. Bring your AMI, we have lots of room now! Contact Randy Likins, (818) 709-0932.

Bits & Pieces Amiga Group of Anaheim. Meets every Tuesday 6:30-10 pm at 1130-A N. Kraemer Blvd., Anaheim, CA 92806. C-64, C-128, Amiga. Public domain software, technical help, guest speakers, much more. Contact John Callaci or Mike Dalton (714) 630-8644/630-8711 for information.

Color America. Amiga SIG meets 1-3 pm on the third Saturday of the month at Rosemead Community Center, 3936 N. Muscatel Ave., Rosemead. For information contact Mark Randall, 2227 Canyon Rd., Arcadia, CA 91006, (818) 355-6111.

Amiga Tech Users Group #1. Meets 4th Tuesdays, 7 pm, University Union, Cal Poly Pomona. Contact Mark Randall, (818) 355-6111. Call for more information, we'll see you there!

Amiga Tech Users Group #2. Meets at Rosemead Community Center, 3936 N. Muscatel Ave., near Valley Blvd., Rosemead, 1 pm, 3rd Saturday of the month. Contact Mark Randall, (818) 355-6111. Call for more information, we'll see you there!

Inland Empire Amiga User Group. Meets 7 pm, 3rd Tuesday of the month, California School for the Deaf, 3044 Horace St., Riverside. Contact Paul Corbet (714) 684-6245. Call for more information, we'll see you there!

LA Amiga Users Group, Meets 3rd Wednesday, 7:30 pm, Veterans Memorial Auditorium, Culver Blvd. at Overland Ave., Culver City. Contact Bill Simpson, (213) 661-7959. Call for more information, we'll see you there!

West Side Amiga Users Group. Meets 2nd Wednesday, 7:30 pm, John Adams Junior High School Cafeteria, 16th and Ocean Park Blvd., Santa Monica. Contact Stuart Sanders (213) 477-4728. Call for more information, we'll see you there!

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

APPLE

Original Apple Corps. First Apple group ever. SIGs for AppleWorks, Telecommunications, Educators, Macintosh. Meetings in the Santa Monica Mall, second Sunday of the month, 3rd floor Community room, 12 noon. Contact Rich Rollons (213) 378-0707, or Fred Duffy, (213) 396-5515.

The Orange Apple Computer Club meets 9 am-12 pm the first Saturday of each month in the Science Hall at Orange Coast College, Costa Mesa. We have over 700 members, ranging from beginners to certified Apple developers, and a large Apple II public domain software library. There are several very active special interest groups which include Apple III, educators, Apple II, modem and investors. For further info call (714) 770-1865.

South Bay Apple III User Group. Over 85 Apple III users share information, programs, group purchases, product demos. Special interest groups meet 1st Tuesdays. General meetings on IIIrd Tuesdays at 7:30 p.m., UCLA Harbor General Hospital, Room III. Corner of Vermont and Carson, off 110 Fwy. Contact Gary Fortune, P.O. Box 432, Redondo Beach, CA 90277, (213) 316-7738.

Tri City Apple User's Group (Glendale, Burbank, Pasadena). New group formed from merger of Pasadena and Wabash groups. Meetings are scheduled the third Thursday of the month at Casa Colina Neurological Learning Center, 50 North Hill St., Pasadena at 7:30 pm. Contact Marie Kaden at (818) 846-6682. Dues $12./yr.

North San Diego Apple Club. Meets 1st Tuesday of each month at Meadowbrook Middle School, Meadowbrook Lane, Poway, 7 pm. Contact Bill Walker (619) 579-9649 or Chuck Newby (619) 566-0387, P.O. Box 75, Poway, CA 92064.

SD AIIIers. Want to start Apple III user group in San Diego area. Contact James Fair, P.O. Box 1592, Lakeside 92040, (619) 561-3270.

Applejacks of the Inland Empire. Primarily for Apple II users. Meets first Wednesday and third Thursday of the month, 7-9 pm, at Norman Feldheym Central Library, 555 W. 6th St., San Bernardino. Contact Scott Zehm at (714)883-2234 for information, or write Applejacks, P.O. Box 23025, San Bernardino, CA 92406.

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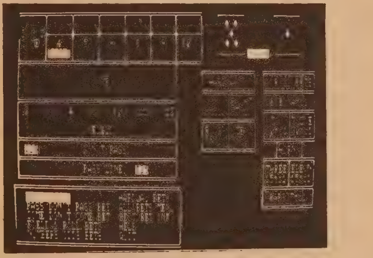
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Appleholics Anonymous of Ventura County. Software library, club BBS, newsletter, hardware and software demos. 150 members. Meetings sometimes vary—call to verify (805) 482-3501, 484-2611, 659-5326, 985-9781. Meetings 3169 Telegraph Road, Ventura, 9:30 am, usually 2nd Saturday.

PVAUG-Pomona Valley Apple Users Group. Meetings are held on the 2nd and 4th Saturday of each month. For time and location, contact Victor Michael at(714) 629-0540.

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

APRICOT

Apricot Roundtable Group of Hapless Hackers (ARGHH!) An Apricot user's group is forming in east Long Beach, open to any Apricot, XI, F1, F2, F10 or FP user, or anyone else with MS- or PC-DOS and 3½" disk drives. Phone Jim Bliss at (213) 425-6302. Meetings 7–10 pm, 3rd Wednesdays or at such other time as membership decides, at 7215 Killdee St., Long Beach, CA 90808.

ASHTON-TATE

dBUG-dBASE Users Group. For all levels of dBase users from beginners to expert. Meets 3rd Monday each month, 7-9 pm, Blue Cross Bldg., 21555 Oxnard, Woodland Hills. For more info contact Bruce Ascough, (818) 789-0723.

dBASE III SIG of UCLA PC Users Group. Meets once per month in Santa Monica—date varies. Contact Tom Rombouts, 1428 N. Curson #6, LA, CA 90046, (213) 874-7471.

ATARI

Atari Computer Association of Orange County (ACAOC). Join one of the biggest Atari user groups in Southern California. Monthly magazine, large public domain library, and club BBS. Dues $24.00/year, $18.00 for non-attending out-of-town members. Meetings at Golden West College, Room 131, Huntington Beach, 1 pm, fourth Sunday of the month (ST meeting same time and place on second Sunday). P.O. Box 9419, Fountain Valley, CA 92728 or (714) 838-3099 for more information.

West LA Atari Users Group. Come join fellow Atarians! Dues are $20.00/year. Newsletter, P/D library, ATR-Sig, discounts, guest speakers. Please call for directions to meeting room! If you're reading this, you belong with us. Meetings first Wednesday of the month, 7 pm, Paul Revere Jr. H.S., 1450 Allenford Dr., Brentwood. Call John Scheid, pres., for more information (213) 829-7239.

Los Angeles Atari Computer Enthusiasts (LAACE). Join Los Angeles' largest and oldest Atari Users' Group, now in our 6th year. Enjoy our monthly meetings and newsletter. Participate in our educational SIG (Special Interest Groups) seminars and meetings. Learn how to get the most out of your Atari; access our hundreds of public domain programs; benefit from the help and experience available from our experts. Come as our guest on the 1st Tuesdays of the month (2nd Tues if holiday occurs in 1st week) at 7:00 pm at Granada Hills High School, 10535 Zelzah Ave., Granada Hills, CA. For full benefits, including member access to our 10 meg BBS, dues are $20/yr ($25 for entire family). Write P.O. Box 7752, Van Nuys, CA 91409 (include your phone number) for additional information.

Santa Clarita Valley Atari Computer Enthusiasts (SCV-ACE) invite you to join us. Meetings are the first Thursday every month from 7 to 9 pm at the Moose Lodge, 18000 W. Sierra Hwy., (1/2 mile north of Soledad Canyon Road), Canyon Country. For info call Bob at (805) 259-6540.

Atari Computer Enthusiasts Network (ACENET). Umbrella group representing many Southern California Atari groups. If you can't locate a user group in your area, contact John Tarpinian at 6055 Cahuenga Blvd., #2, North Hollywood, CA 91606, (818) 760-1831.

Hooked on Atari Computer Keyboard Society (HACKS). Meetings on the first Saturday of the month in the Burbank area. For more information contact John Tarpinian, 6055 Cahuenga Blvd., #2, North Hollywood, CA 91606, (818) 760-1831.

AA-Atari Users Group. Meets at Upland Public Library, 450 N. Euclid Ave. Atari 400, 800, XL/XE group meets second Tuesday, 6-9 pm. Call Juan Valdes, (714) 980-6841 for more info. 520/1040ST group meets fourth Thursday 6-9 pm. Call Jay McCarthy, (714) 829-8722 for more information.

MAST—Mid-Cities Atari ST. Meetings at 9025 E. Artesia Blvd., Bellflower, first Sunday, 7 pm. Contact Jane Hughes, 9701 E. Artesia Blvd., Bellflower, (213) 867-0626.

South Bay Atari Computer Enthusiasts (S.B.A.C.E.). Meets 2nd Tuesdays, 7:30 pm, VFW Hall, 1865 Lomita Blvd., Lomita. Meetings consist of guest speakers from software and hardware suppliers, demos by members, q & a periods, along with current Atari rumors. Newsletter, published 6 times a year, included with $20/yr membership fee. Write S.B.A.C.E., P.O. Box 83668, Los Angeles, CA 90083, for more information, or call Dick Reaser, (213) 645-7063.

Pasadena Area Local Atari Computer Enthusiasts (PAL-ACE). Meets monthly in the Monrovia area on the third Tuesday of the month. Contact Chris Roberts, sysop of PAL-ACE BBS, (818) 359-1697.

AUTOCAD

AutoCAD Los Angeles Users Group. Meetings fourth Thursday of the month (except November and December—Meetings Nov. 20 and Dec. 18), Church of Religious Science, 260 North Pass Ave, Burbank. Contact Tesfaye Abagaz, (818) 843-5770 (work).

COMMODORE

San Diego Commodore Users Group. Meets third Wednesday, 7 pm, 2557 3rd Ave. (Women's Club), San Diego. For all Commodore machines. Contact Jane Campbell, (619) 584-2872 for more information, or write: P.O. Box 86531, San Diego, CA 92138-6531.

San Fernando Valley Commodore Users Group. Meets second Wednesday of the month at Patrick Henry Junior High on Louise Ave. between Devonshire and San Jose in Granada Hills, near 118/405 freeway interchange. Contact Tom Lynch, 21208 Nashville, Chatsworth, CA 91311, (818) 709-4736.

San Luis Obispo Commodore Computer Club 1766 9th St., Los Osos, CA 93402. (805) 528-7475 BBS.

The Commodore Users Group - San Juan Capistrano. This group of C64 users meets the second Saturday of every month from 9:00 am till 12:00 at Great American Federal Savings and Loan, 32232 Camino Capo, San Juan Capistrano. For info call 496-5745.

Orange County Commodore Technical User's Group C-TUG. Orange County's Commodore user group. Club newsletter, two 300/1200 baud BBSs, door prizes, SIGs in Comal, DOS protection, data bases, wpros, and BASIC. Custom software and ROM chips, and just plain good times. Meetings at Mercury Savings and Loan, 4th and Newport, Tustin, fourth Sunday of the month, 10:30 am. Contact Ellis L. Higham, corresponding secretary, P.O. Box 8342, Orange, CA 92664, (714) 554-9222.

Hollywood User Group (HUG) for Commodore computers. Meets 2nd Saturday of the month at Plummer Park, Conference Room, 7377 Santa Monica Blvd., West LA at 12 noon. Contact HUG BBS (213) 874-8256 (24 hrs) or write HUG, P.O. Box 38313, Hollywood, CA 90038.

Southern California 64 Users Group. Learn more about your Commodore 64. Extensive public domain disk library. Meet at Mid Cities Bank in Gemco shopping center on Bellflower, just south of 91 Freeway, 7 pm, 3rd Tuesday of every month. Contact Joe Allain, 3852 Riverton, Studio City, CA 91604, (818) 985-2647.

C-128 West UG. User group for owners of the Commodore C128, from beginner to advanced; PD software available. New group still assessing the needs and interests of members. Intend to network with other user groups on C128 software. Meetings 2nd Tuesday, 7:15 pm, McKinley School in Santa Monica, Santa Monica Blvd. and Chelsea. Contact Don Campbell (213) 828-9308.

Inland Empire IBM/C64 User Group. Major subjects are local area networks, small business software, data communications. Send SASE for free newsletter with dates and software library. Contact Winfried Hofacker, P.O. Box 988, Chino Ca 91708-0988.

Commodore Creations Users Group (CCUG). We offer library, newsletter, and other services; upcoming BBS; soon to be member of Commodore World. Meets 2nd or 3rd Sunday of each month 2-4 pm. Membership dues $26 per year. Call or write for info: Brian R. Klotz, 1135 Coronet Ave., Pasadena, CA 91107 (818) 351-8198.

Back-Country Commodore Club. Meets first Thursday 7 pm, Ramona Lutheran Church on 14th St. Check us out for relaxed, informative group discussions. We're here to help those with problems and to promote better uses of Commodore 64s, 128s, and Amigas. Contact Gerry White at (619) 789-3209, 511 14th St. #D-13/P.O. Box 373, Ramona, CA 92065. Meetings at 617 16th St., Ramona, CA 92065, 7 pm, 1st Thursday each month.

General Dynamics Commodore Computer Club. Meets third Tuesdays, 4:30 pm, Convair Rec. Assn. room C. Commodore 64 and 128 only. Contact Al Wilson, (619) 429-6790 for information.

C.U.B.E. Commodore Users, Buffs, and Enthusiasts meet first and third Mondays of each month, 7:30 pm, East Side Christian Church, 668 Obispo, Long Beach. Contact Lynn Cothern, 2005 Palo Verde #163, Long Beach, (213) 421-1041 modem.

Com-Pacs. Meetings and/or copies of public domain software and discussion of problems. New computer C64/128 technologies. Sales and swaps of equipment. Meetings at 2354 Elmgrove St. Los Angeles, CA, Saturdays, 3 pm. Contact Lon Damiani, (213) 222-2277.

PLUG (The Plus/4 Users' Group). Dedicated solely to support of the Commodore Plus/4. No regular meetings, 200 members in US, Canada, Mexico, and Europe. Newsletter, public domain software library. P.O. Box 1001, Monterey, CA 93942.

Pacific Computer Club (Commodore). Meetings 391 S. Madison, Pasadena, 2nd Thursday, 7 pm. Contact Norman Sauppe, (818) 792-9840.

FCUG/SixtyFourum. PD library, newlsetter, meeting 3rd Saturdays, 8:30 am. Contact George Bearden, P.O. Box 16098, Fresno, CA 93755, (209) 291-7053. BBS (209) 431-6288.

Central Coast Commodore Users Group. Meets 3rd Tuesday of each month. Contact Gilbert Vela, 4237 Plumeria Ct., Santa Maria, CA 93455. CCCUG BBS (805) 934-2216, 24 hrs/7 days, 300 baud, Punter BBS protocol for downloads.

Diamond Bar User Group (DBUG). The Diamond Bar User Group is dedicated to the Commodore line of computers, C64, C128, and the Amiga. The club has a large public domain software library base, especially Commodore CP/M. Free raffles, technical discussions, software demonstrations, and the monthly freebie disk can be found at most any meeting. Meetings 2nd and 4th Wednesdays, 7 pm, Diamond Bar Library, 1061 S. Grand Ave., Diamond Bar, CA. Contact David Dietzel, (714) 947-1882 for more information.

South Orange County Commodore Programmers and Users (CPU). Meetings at Great American Savings, 23688 El Toro Road, El Toro, third Saturdays, 9 am. Contact Don Gribble, President, 25401 Champlain Rd., Laguna Hills, CA 92653, (714) 830-2430 or (714) 855-8320.

West Orange County Commodore User Group. Meetings 1st Sundays, 1 pm, Mercury Savings, Buena Park, corner of Valley View and Lincoln. Write for info: P.O. Box 6441, Buena Park, CA 90622; or call Mark Stanford, (714) 772-4182 or Art Collins (714) 821-0195.

Bits & Pieces Amiga Group of Anaheim. Meets every Tues-day 6:30-10 pm at 1130-A N. Kraemer Blvd., Anaheim, CA 92806. C-64, C-128, Amiga. Public domain software, technical help, guest speakers, much more. Contact John Callaci or Mike Dalton (714) 630-8644/630-8711 for information.

The Pasadena Commodore Computer Club meets the first and third Wednesday of the month at 7 pm in the Circadian Room of the cafeteria on the campus of Pasadena City Col-lege, SE corner of Colorado and Hill. For more information write to PCCC, P.O. Box 1163, Arcadia, CA 91006, or call (818) 447-2212 after 2:30 Pacific time.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 6:30–9:30 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

CORDATA

Cordata Users Group. Meets 2nd Fridays, 7 pm. 20630 Lassen St., Chatsworth. Contact Alicia Fahey, (818) 709-6202 for information.

DEC

DECUS Inland Empire PC-LUG Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software /applications assistance available; FIDO bulletin board. Meets Cal Poly-Pomona campus, Library Bldg 15, Room 12, 7:30 pm 3rd Tuesday of each month. Contact Jan Snyder, 380 Verona St., Upland, CA 91786, (714) 620-7511 ext. 4376.

DECUS Southern California PC-LUG. Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software/applications assistance available; FIDO bulletin board. Meets 10:30 am, 1st Saturday of the month, Press Telegram Bldg., 3rd Floor, 604 Pine Ave., Long Beach, CA. Contact Bill Davis, 1457 W. 219th St., Torrance, CA 90501. (213) 827-4600.

DECUS Rainbow Pacific PC-LUG Digital Equipment Computer Users Society. Free to all DEC users; Decmates, Rainbows, Professionals; P/D software; guest speakers; software /applications assistance available; FIDO bulletin board. Meetings at Digital Equipment Corporation, 6101 W. Centinela Ave., Culver City, CA 90230, 7 pm, 2nd Wednesday of each month. Contact Don Braums, 3312 Summertime Lane, Culver City, CA 90230, (213) 202-1784.

EASYBUSINESS

Easybusiness Systems Users Group. CPAs, Consultants, and other business people interested in Computer Associates Easybusiness Systems' Accounting Software. For information, contact Gary Robinson (213) 398-6544.

EPSON

Cursor Club Epson 402 W. Arrow Highway, Suite 6, San Dimas, CA 91773. (714) 559-8361, Bulletin Board: (714) 592-6316.

San Fernando Valley Epson User Group. Meetings at Fallbrook Square Community Room "The Meeting Place" off the Food Court in the new Fallbrook Mall, 6633 Fallbrook Ave., Canoga Park, between Victory and Vanowen. Meets 3rd Wednesday of each month at 7 pm. Contact Pat Denslow, (818) 881-4029 for information.

Epson Users Group of Orange County. 6075 Jeffrey Mark St., Cypress, CA 90630, (213) 414-4817.

Epson Users of San Diego. P.O. Box 87448, San Diego, CA 92138, (619) 560-7604.

High Desert Epson Users Group. 933 Cottonwood Drive, Barstow, CA 92311, (619) 256-3541.

PSC/QX. 2934 Wilshire Blvd., Santa Monica, CA 90403, (213) 453-4535, Bulletin Board: (213) 474-4952.

South Bay Epson Users Group. 1115 Cerise Avenue, Torrance, CA 90503, (213) 328-9916, Bulletin Board: (213) 618-1940.

Epson Computer Club of America. Monthly meeting 2nd Saturday of the month at 10 am, Mercury Savings and Loan, Irvine Blvd. one block east of Newport Ave. Messages Epson West Bulletin Board (714) 630-7104 User area B:15. Monthly newsletter "The Help Key." Contact Roy Boorman, 4021 Winterhaven St., Yorba Linda CA 92686, (714) 524-9483.

FORTH

FORTH Interest Group, Los Angeles Chapter. Meets 4th Saturday, 10 am, Hawthorne Public Library, 12700 S. Grevillea, Hawthorne. Contact Phil Wasson (213) 649-1428.

FORTH Interest Group, Orange County Chapter. Meets 1st and 4th Wednesdays, 7 pm. Call Noshir Jesung for info. (714) 842-3032.

FORTH Interest Group, San Diego Chapter. Meets weekly, Thurs., 12 noon, contact Guy Kelly (619) 268-3100 ext. 4784.

HEATH

Los Angeles HUG (Heath Users Group). A support group for users of Heath/Zenith computers. Monthly speakers, software library, information exchange, newsletter. Meetings open to visitors. Meetings at 2309 S. Flower St., LA 90007, first Thursday of each month at 7 pm. Call Tom Davis for information at (213) 462-2642.

HEWLETT-PACKARD

Club of Hewlett - Packard Hand-Held Users (CHHU). HP handheld users worldwide support CHHU as a noncommercial, open, independent club dedicated to applying today's machines and making a contribution to the true personal computer of tomorrow. Send SASE for more info to Richard J. Nelson, 2545 W. Camden Place, Santa Ana, CA 92704, or call (714) 754-7757 for meeting directions.

LA-SCRUG. Hewlett - Packard Series 100 business computer user group. Demonstrations and seminars on HP software and equipment. Meetings at 5161 Lankershim Blvd., North Hollywood, 7-9 pm, 2nd or 3rd Thursday of the month. Contact Dave Mark, P.O. Box 60975, Pasadena, CA 91106, (818) 794-4969.

IBM

The Greater South Bay IBM PC Users Association. Any L.A. area PC or compatible owners are welcome to attend these meetings at the TRW cafeteria on Compton Blvd. Meeting time is 7:00 pm on the third Thursday of each month. For info call (213) 398-8153.

Technical Users Group (TUG-NET). For CP/M & MS-DOS PC users. Meets on the first Thursday of each month at 7:00 pm. Valley Plaza Park, Community Room, 12240 Archwood St., North Hollywood, CA. Contact Mike Faith - (818) 994-6567. DOS SIG meets 3rd Mondays, 7 pm, Sears S&L, Van Nuys. Call (818) 701-0512 for information. BBS (818) 882-6045.

UCLA PC Users Group. IBM PC or compatibles owners welcome to join us on the 2nd Tuesday of the month, 7 pm. Public domain library , SIGs, BBS, seminars and newsletters. NPI Auditorium, UCLA, Westwood Plaza, Level C. For more information call (213) 473-6668.

Pasadena IBM User's Group. Meets 3rd Wednesday of each month at Cal Tech, Steele Building, Room 102. For more info send SASE to Steve Bass, 711 E. Walnut Street #306, Pasadena, CA 91101, (818) 795-2300.

Inland Empire IBM/C64 User Group. Major subjects are local area networks, small business software, data communications. Send SASE for free newsletter with dates and software library. Contact Winfried Hofacker, P.O. Box 988, Chino Ca 91708-0988.

The Foothill Computer Club. An IBM-PC users group. CCCUG — Crescenta-Canada-Compatible Users Group. P.O. Box 1265, La Canada, CA 91011, (818) 790-6672. Meetings 1st Wednesday of the month at 6:30 pm at the Glendale Federal Bank, 2350 Honolulu, Montrose, CA. For newsletter send SASE to above address.

NOCCC Lotus & Business SIG. Subgroup of North Orange County Computer Club. Meets first Sundays at Chapman College in Orange, CA, 11:15 am. Lotus 1-2-3 and business application demos, speakers. Call to verify dates, address: Vance Joachim, (714) 998-8080. P.O. Box 3616, Orange, CA 92665.

The Riverside IBM Computer Club. Meetings at Computerland Riverside, Monday 7 pm. We specialize in software demonstrations, sharing of public domain programs, and mutual problem solving activities. Contact Jimmie E. Heidecke, (714) 685-5407 for info.

Orange Coast IBM PC User Group. A not-for-profit organization open to anyone with or considering the purchase of an IBM PC or compatible computer. Monthly meetings, usually on the last Saturday of the month, consist of one or two guest speakers, a short business session and a period for random access. OCIPUG has public domain and user supported software, a monthly newsletter and a bulletin board. Membership is $20 per year. Meetings at Orange Coast College, Science Hall, Costa Mesa, last Saturday of the month, 9 am–12 noon. Contact Tom Sutro, P.O. Box 6100-211, Costa Mesa, CA 92628, (714) 850-0474.

Valley Computer Club. IBM PC Users Group meets first Wednesday each month. The group is part of Southern California's original computer club. Its purpose is to distribute public domain software and exchange info on the PC. Meetings at 2006 W. Magnolia Blvd., Burbank, 7 pm. Contact Sy Lieberman, (818) 981-9593.

Kern Independent PC User Group (KIPUG). Meets the 2nd Thursday of each month beginning at 7 pm at the County Superintendent of Schools Boardroom, 5801 Sundale Ave., Bakersfield. Contact Jim Harrer, P.O. Box 2780, Bakersfield, CA 93303, (805) 395-0223.

Bits & Pieces IBM of Orange County. Meets at 1130-A N. Kraemer Blvd., Anaheim, every

Saturday at 10 am. Call John, (714) 630-8644 for more information.

Ventura Personal Computer User's Group. All MS-DOS and PC-DOS machines. Meetings 3rd Saturday 9 am-12 noon, Foster Library, 651 E. Main, Ventura. contact Mike Regan, President, 301 Dana Point, Ventura, CA 93004, (805) 647-8273.

Thousand Oaks Personal Computer Club (TOPCC). Meets fourth Thursday, except November and December (3rd Thursday), at Home Federal Savings, 164 W. Hillcrest Dr., Thousand Oaks—6:30 pm beginners, 7:30 regulars. Group is five years old and has approximately 150 members. Contact Bob Tracy, (805) 482-7092 for more information.

Southwest PC Users Group. All computer users are welcome. Meetings 3rd Saturday of each month; call for meeting place. Christine Tripp, (213) 935-4105.

Tulare County PC. Meetings at Genesis Computers, 3rd Thursday each month. Call Roger Jenan, (209) 733-8204 for information.

Claremont Computer Club. This club is for any interested IBM PC or compatible users. Meetings start at 7:30 pm on the 3rd Monday of the month. Call (714) 626-2268 for meeting location and information.

Apple/Valley Computer Club. Member interests include Apple, Amiga, IBM and others. Meetings are held on the 2nd Wednesday of each month, 7:30pm, at Valley Presbyterian Hospital, meeting room #3, 15107 Van Owen, Van Nuys, CA. For more info, contact Dr. William H. Trent, 6502 Kester Avenue, #7, Van Nuys, CA 91411, (818) 988-1752.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 6:30–9:30 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

KAYPRO

Lakewood/Long Beach KUG is a group of Kaypro computer owners dedicated to helping each other solve problems and share information and public domain software. The meeting is open to all. Meetings at Midcities Bank, 9025 Artesia, Bellflower, CA, 2nd Wednesday of each month; 7 p.m. Contact Melvin Pasley, 4566 Shadeway Rd., Lakewood, CA 90713, (213) 421-3094.

Kaypro UG, 3134 N. Palm Shields, Fresno, CA 93704.

K-West, Orange County Kaypro users group. Meetings 2nd Monday of the month, Glendale Federal Savings, 100 Newport Center Drive, Newport Beach.

Club 16. Meets once a month in Costa Mesa at 2790 Harbor Blvd., (CBS Store) to share knowledge of the 16 bit world. It is a small group so that everyone can get to know each other and share. Large public domain library. Contact Peggy Lloyd, (714) 645-9868 for information.

LA Kaypro Users' Group. Primarily CP/M users, all brands welcome. Meets 3rd Tuesday, 6:30-9:30, Beverly Hills High School, 241 Moreno Ave., 3rd floor cafeteria, near Olympic and Spalding. Contact Allyn Franklin or Barry Cole, (213) 278-3748 or (213) 390-3851 after 11 am please.

Kayos Kaypro Users Group. Kayos Kaypro User Group invites Kaypro and CP/M users to meetings at TRW in Redondo Beach, 6:30 pm, third Monday of the month. (213) 379-8339 for details.

TUG-NET Kaypro and Osborne SIG meets 4th Thursdays, 7 pm, Central Savings, 4464 Van Nuys Blvd., Sherman Oaks. Call (818) 882-1693 for information.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 6:30–9:30 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

LEADING EDGE

Leading Edge User's Group. A user's group of predominantly Leading Edge users and other similar machines with high clock speed. Public domain software, demos of software/hardware. No fees. Meetings 7:00 pm, 2nd Wednesday of the month, 12792 Valley View, Suite F, Garden Grove, Contact Bruce Fruchter, (714) 891-2001 for information.

LOTUS

Los Angeles Lotus Users Group. Demonstrations, problem-solving, third-party applications, etc. For Lotus 1-2-3 and Symphony. Informal and fun. 7–9 pm, Burbank church of Religious Science, 3rd Thursday each month. Take 134E to Pass, N. 1 block. Call Don Roark, President, (818) 905-1441 for information.

MACINTOSH

Los Angeles Macintosh Group (LAMG) Be a part of the best Mac group in So. Calif. Many SIG and local groups to choose from including desktop publishing, OMNI, business, education and more. Monthly main meeting at McKinley Elementary School, Santa Monica Blvd. at Cloverfield, Santa Monica. Membership $25 annually includes 12 issues of MacDigest newsletter, access to public domain library, discounts at local stores. Call Eric Anderson, (213) 278-LAMG for information.

Ventura County Macintosh Club Mac and Lisa users invited. Membership $21/yr.; newsletter, software library, discussions and ideas. P.O. Box 7754, Oxnard, CA 93031, (805) 983-1610, (805) 499-2824.

Mac Valley Users Group. For $20/yr. membership fee you too can enjoy meetings chock full of software/hardware presentations, public domain software library, Mac articles index, software and accessory raffles, and help hotline. Broad range of users, very friendly to novices. Meetings at Burbank High School Cafeteria, Burbank Blvd. at 3rd St., Burbank, CA, third Tuesday of the month, 7:30 p.m. Contact Ruth Stever, P.O. Box 4297, Burbank, Ca 91503, (818) 848-1277.

MAC-HACers. Macintosh computer club for Hughes Aircraft employees only. Meetings 3rd Wed. each month, H.E.S.E.A. Club House, 1216 Imperial, El Segundo, CA 90745, across from LAX, 5 pm. Contact Bud Grove, (213) 606-2212, 5am-3pm, (213) 549-9664.

Orange Apple Macintosh Group. The Macintosh Meeting of the Orange Apple Computer Club meets 1 pm-4 pm the 1st Saturday of each month in the Science Hall at Orange Coast College, Costa Mesa. We have the best of the public domain software for the Mac, and several fun special interest groups which include Fast Start, Mac Modem, and Deciphering Mac Public Domain. For further info, call (714) 770-1865.

Mac Orange. Bi-monthly newsletter, monthly meetings, largest Macintosh user group in Orange County (400+ members). $20 annual dues. Meetings Johnson Center, Santa Ana College, 3rd Wed. Contact Taylor Barcroft, P.O. Box 2178, Huntington Beach, CA 92647, (714) 842-0518 for info.

MacBuddhist. Learn about computer assisted dharma study and application to daily living. Network of on-line Bodhisattvas sharing material crossing sectarian lines. Monthly meetings, last Saturday of the month. Contact secretary, College of Buddhist Studies, 933 South New Hampshire, Los Angeles, CA (213) 739-1270.

Corporate User Groups SIG of Los Angeles Macintosh User Group establishes communication between leaders of Macintosh User Groups of companies in the greater Los Angeles area. The main purpose of the group is to share information on Macintosh use in corporations. It also consults company recreation clubs in starting and supporting company Macintosh groups. Contact Charles Shipp, (213) 970-6300w, (213) 833-9186h, for more information.

San Gabriel Valley Mac Users Group. Meets once a month to disseminate information about the Macintosh. Meetings are held on the first Thursday of every month at the City of Hope in Duarte, 7:30 pm in cafeteria complex Room B. The SGVMUG has special interest groups such as Power Users' SIG and a Novice SIG. Public domain library, monthly newsletter. Membership is $20 per year. Contact Frank Chavez on the 24 hour information line (213) MUG-ICON, or write SGVMUG, P.O. Box 792, Sierra Madre, CA 91024.

MORROW

West LA Morrow User's Group /The Morrow Minority. 40 dedicated members, with special emphasis in WP; PD library. No dues, but $1 at door to pay for refreshments. Some classes and informal newsletter. If new, call to reserve space: Dr. Bernice Ennis, (213) 276-9096, 1833 Franklin Canyon Dr., Beverly Hills, CA. Meetings 2nd Wednesday of the month.

LA Morrow User Group. Meets 3rd Thursday each month, North Hollywood Recreation Center, 11430 Chandler Blvd., North Hollywood. Contact Jack Byers, (818) 347-7283 for information.

NEC

Orange County NEC Users Group (OCNUG). Dedicated to NEC-APC computers, CP/M-86 & MS-DOS. Always room for any experience level. Meets 3 pm, third Saturday of the month. 6642 Lenore, Garden Grove. CA 92645. Call John Bingel at (714) 897-7656 for more info.

The Los Angeles Area NEC APC Users Group meets on the first Saturday of each month at 3 pm at the I/O Interface Computer Mart, 6241 West 89th St., Los Angeles, CA 90045. Telephone (213) 410-9824. There is no meeting in January, and occasionally a meeting may be cancelled or postponed, so it is best to call before coming.

OLIVETTI

Olivetti PC User Group forming. Send SASE to Stan Cory, 29500 Heathercliff Rd. #86, Malibu, CA 90265, or call (213) 457-3879.

OMNIS 3

Omnis 3 User Group. Meets every third Wednesday of the month at Grant St. Elementary School in the auditorium. Address is 2368 Pearl St., Santa Monica. Time is 7:30 pm. The use of Omnis3 and Omnis 3+ in data processing information management systems is covered, from setup to advanced features. Expert and novice welcome. Call Zachary Sempers at (818) 701-1355 for information.

OSBORNE

TUG-NET Kaypro and Osborne SIG meets 4th Thursdays, 7 pm, Central Savings, 4464 Van Nuys Blvd., Sherman Oaks. BBS (818) 882-6045, 8-N-1, 1200 baud, 24 hours.

Osborne Komputer Owners Klub (OKOK) is a microcomputer user group serving a variety of computers: Osborne, Kaypro, Commodore C128, IBM and clones. Thus we serve both MS-DOS and CP/M operating systems. We offer monthly meetings, classes, public domain software library, electronic bulletin board and special purchase opportunities. Meetings first three Tuesdays of the month, 6:30–9:30 pm, in the meeting room at the rear of California Federal Savings Bank, 285 S. Lake Ave., Pasadena. Contact Lionel Soracco, (818) 794-3243, or write OKOK, P.O. Box 40429, Pasadena, CA 91104.

Osborne National Users Group meets 2nd Fri./mo. at 7:30 pm at Wizard of Oz, 20630 Lassen St., Chatsworth, CA 91311. Contact Art Schlefstein, (818) 709-6969.

PARADOX

Southern California Paradox Users Group. Anyone with an interest in the relational database Paradox please send an SASE to Brian Smith, 350 Palos Verdes Blvd., Redondo Beach, CA 90277. Meetings are being held in LA and Orange County.

RADIO SHACK TRS

South Bay Color Computer Club TRS-80, TDP-100, Dragon. Meets third Friday of the month at Mercury Savings, 22939 Hawthorne Blvd., Torrance. Info: Andrew Corlett, 1435 W. 172nd St., Gardena, CA 90247. (213) 538-8394.

OCTUG-Orange County TRS-80 Users Group. Meets the 3rd Sunday of each month in the community room at "The City Shopping Center" in Orange. The room is near the green entrance of the mall (N.E. corner). MS-DOS SIG (Special Interest Group) begins at 11:30 am. General meeting begins at 1:30 pm. Devoted to the Tandy line of computers and compatibles. Come on down and see what it's like. For more info, contact Franco Collino, (714) 750-0887.

San Gabriel Valley TRS-80 Users Group. Supporting users of TRS-80 and Tandy computers. Meets 2nd Friday of each month at Arcadia Park Senior Citizens Center at 7:30 p.m. Monthly newsletter, various SIGs, lotsa fun & info. Contact Dan Dresselhaus. (818) 914-5831 days.

VTUG (Valley TRS-80 User Group). Devoted to users of TRS-80 Model I, II, 4, 4P, LNN or MAX-80. Speakers, presentations, raffle drawing, refreshments. No admission or membership fee, new members welcome. Meetings at Glendale Federal Savings, 7129 Topanga Canyon Blvd., Canoga Park, 3rd Thurs., 7:30 pm. Contact Fred Blechman, (818) 346-7024.

VTHGValley TRS80 Hacker's Group. Programming and problem solving for Models 1, 3, and 4. No vendors, no machines. No dues. No sweat. Bring a blank disk and get NEW public domain software. Meetings 1st Fridays, 7:30 pm, Valley Plaza Park Auditorium, 12240 Archwood St., North Hollywood. Call Eric Bagai at (818) 982-0467 for more information.

Tandy 1000 (The MUG) Meets fourth Wednesdays, 7 pm, 9027 E. Artesia, Bellflower, CA. Contact Dick Sherwood, 4014 Centralia St., Lakewood, 90712, (213) 421-4014. The MUG RBBS (213) 425-0022, members only.

Color America. Radio Shack color Computer SIG meets 2:30-5 pm on the third Saturday of the month at Rosemead Community Center, 3936 N. Muscatel Ave., Rosemead. Contact Mark Randall, 2227 Canyon Rd., Arcadia, CA 91006, (818) 355-6111.

The Los Angeles-Wilshire Color Computer Users' Group, a TRS-80 Color Computer Users' Group, meets the 2nd Saturday of each month, 12:30 pm-5:30 pm in the Felipe de Neve library's community room, 2820 W. 6th, Los Angeles. Call Milton, (213) 558-4909.

United Computer Federation-San Fernando Valley Chapter. Meets the fourth Tuesday of each month at the Tarzana Radio Shack, 18545 Ventura Blvd., 1/2 block west of Reseda Blvd. Meeting starts at 7:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Pete Ellison, chapter president, at (818) 840-8902.

United Computer Federation-Los Angeles Chapter. Meets the fourth Thursday of each month at the Church of Christ recreational building, corner of Clark and Park streets, just off the 91 freeway in Bellflower. Meeting starts at 7:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Gary James, chapter president, at (213) 420-7632.

United Computer Federation-Orange County Chapter. Meets the second Sunday of each month at the Mercury Savings building on Edinger Ave., 1 block north of Beach Blvd. in Westminster. Meeting starts at 1:30 pm. Meetings are open to the public and all are welcome. The UCF is a network of Tandy Color Computer user groups. For more information phone Allen Nedrow, chapter president, at (213) 692-3073.

SBT

The Orange County SBT Users Group is being formed and is seeking members who are interested in an atmosphere that promotes the better understanding and more efficient use of the SBT Accounting Software. Contact Jay Rubin, P.O. Box 5145, Newport Beach, CA 92662, (714) 720-8171.

SANYO

Sanyo-MS/DOS Table Top Computers, 14717 South Prairie Ave., Lawndale, CA 90260. (213) 679-1151.

Zenith-Sanyo Users Group meets 10 am every first and third Sunday at 401 S. La Brea Ave., Inglewood, CA 90301. Call Alan Gillen, (213) 674-0318 for information.

Sanyo Users Group of LA (SUGLA). Devoted to users of Sanyo MBC 550/555 micro business computer. Guests welcome. Dues $15/yr. Speakers, presentations, public domain software library, information, new hardware and software reviews. Meetings 2nd Wednesdays, 7 pm, USC School of Medicine, Norris Medical Library, Conference Room Downstairs, 2025 Zonal Ave., LA. Contact Fred Blechman, (818) 346-7024.

TEXAS INSTRUMENTS

LA 99er Computer Group. TI 99/4A support, classes and SIGs, large software library, monthly newsletter. Demonstrations, bulk purchase discounts on hardware, software and books. A good group to join. Meetings at Torrance Public Library, 3301 Torrance Blvd. (corner of Madrone), Torrance, CA. 4th Wednesday of the month, 7 pm. Contact Terrie Masters, 148 S. Maple Drive, Beverly Hills, CA 90212, (213) 271-6930.

The TI-99 Club. Yes, there still are a lot of 99's and 99/4a's around. If you own one, then get in touch with these people. They have good info for TI owners. Meetings take place at the Westminster Community Center on the third Thursday of every month at 7:00 pm. For info, call (714) 842-0859.

TI-West (Los Angeles West Side Area). Meets at DeCoursey Engineering Laboratory, 11828 W. Jefferson Blvd., Culver City, on the 3rd Monday of each month. For information, contact Lew Howard at (213)397-9668.

San Gabriel Valley TI 99/4 Users Group meets 1st Wed./mo. at 6:30 pm in the Covina Parkway, West Covina, CA. Contact Tom Padilla, (213) 330-8240.

TI Riverside UG. Supporting the TI 99/4A. Meetings at Collett School, 3rd Thursday, 7 p.m. Contact Ed Butcher, 3523 McKinley St., Riverside, (714) 686-0336.

San Fernando Valley TI 99/4A User Group. Library, Workshops, Newsletter, How To? For further information call Jim Edwards, (818) 248-9558, 5-10 pm. Meetings 2nd Wednesday of the month, 7:30 pm, Doctor's Conference Room, Sherman Oaks Community Hospital, 4929 Van Nuys Blvd.

Antelope Valley TI UG. TI User Group. Meetings at Palmdale Culture Center, 3rd Wed., 7 pm. Contact Len Rouw, 38540 26th St. East, (805) 947-6270.

El Toro 99 Home Computer Users Group. The ET-99 Home Computer User Group meets to demonstrate programs, equipment, and discuss techniques. Contact Ken Baldwin, 23065 Sonoita, Mission Viejo, CA 92641, (714) 855-0480. Meetings at Mercury Savings and Loan, 1-5 and Lake Forest, El Toro, 2nd Saturday of each month 9 am - 12 noon.

Tri-Valley 99'ers. We have what you're looking for! Interesting guest speakers, software/hardware demonstrations, large group library, monthly newsletters. We serve the entire Conejo Valley and beyond! Contact Steve Mehr (805) 496-8725 or Chuck Salvatore, (805) 527-4129 for more information.

BUG (Brea 99er's Users Group). Meets the first Monday of the month at 7:30 pm at the Western Federal Savings meeting room, #10 La Habra Fashion Square, corner Beach and Imperial, in La Habra. For further information call Bob August at (714) 871-3405.

TIMEX-SINCLAIR

Timex-Sinclair. South Bay and West Side groups. Call John W. Petersen at (213) 545-9581 anytime or Dr. George Kuby (213) 201-2014 after 3 pm for more information.

TOMY

Tomy Tutor computer user group. Contact Eugene C. Dinovo, P.O. Box 37, Sepulveda, CA 91343.

VICTOR

West Los Angeles Victor Users Group (WLA-VUG). Victor 9000 users - you are not alone! Meet other users. Free V9000 software & purchasing discounts for members. Victor-specific bulletin board (818) 989-2216. Meetings at 8651 Olin St., LA 90034, 7 pm, 3rd Thursday, every month except December. Contact Roger Goodman, (213) 558-8363.

Orange County Victor 9000 User Group. Meets second Friday of the month at 7:30 pm, Cal State Long Beach, Palo Verde St., Engineering Bldg. #2, Room 304, Long Beach. For information write or call Don Henderson, 9350 Bolsa Ave. #8, Westminster, CA 92683, (714) 894-0073.

WANG

Wang WP Users Group. Meets 4th Thurs. of each odd month, 6 pm. Newsletter, speakers,information network. Call for meeting place: Steven Hirsh, (213) 255-5515, or write 2858 El Roble Drive., Los Angeles 90041.

WORDSTAR

WordStar User Group LA. Now forming. for all WordStar users, regardless of computer. Discussion, lectures, presentations, & demos, including enhancement products. Shortcuts & discount purchases. All experience levels. Call for info about first meeting: Ken Adler, (818) 501-4798, (818) 783-4533.

XSCRIBE

X.C.E.L. (XScribe Court Reporters for Education and Learning). XScribe users can share knowledge, have sessions on resolving problems encountered, and keep abreast of activities in the C.A.T. field. Contact Diane Altshuler, XScribe Corp., 3366 N. Torrey Pines Ct. Suite 300, La Jolla, CA 92037. (800) 854-2919.

ZENITH

Zenith-Sanyo Users Group meets 10 am every first and third Sunday at 401 S. La Brea Ave., Inglewood, CA 90301. Call Alan Gillen, (213) 674-0318 for information.

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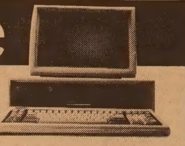

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Free Software Catelog. IBM $2.50/disk. C-64 2/$4. S.A.S.E., Softshare 24365-154 San Fernando, Newhall, CA 91321. Lori (805) 255-7072

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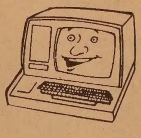

4/18 Ventura Computer Show & Sale
Ventura Fairgrounds
Going N. exit California St. off 101, Going S. exit Ventura Ave off 101

5/2 San Diego Computer Show & Sale
San Diego Scottish Rite Center
Take I-8 to Mission Center/Texas St. exit, Left on Camino del Rio South

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